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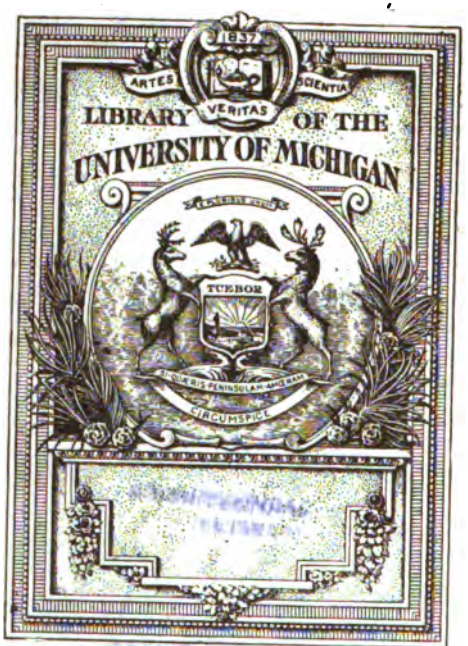
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CANTERBURY CATHEDRAL
FROM A DRAWING BY A. BRUNET-DEBAINES

GOTHIC ARCHITECTURE

BY

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EDITOR'S PREFACE

THE following pages, which have been translated under my supervision by Miss Florence Simmonds, give such an account of the birth and evolution of Gothic Architecture as may be considered sufficient for a handbook. Mons. Corroyer writes, indeed, from a thoroughly French standpoint. He is apt to believe that everything admirable in Gothic architecture had a Gallic origin. Vexed questions of priority, such as that attaching to the choir of Lincoln, he dismisses with a phrase, while the larger question of French influence generally in these islands of ours, he solves by the simple process of referring every creation which takes his fancy either to a French master or a French example, here coming, be it said, into occasional collision with his own stock authority, the late Mons. Viollet-le-duc. The Chauvinistic tone thus given to his pages may be regretted, but, when all is said, it does not greatly affect their value as a picture of Gothic development. Mons. Corroyer confines himself in the main to broad

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principles. He travels along the line of evolution, pointing out how material conditions and discoveries, and their consequent social changes, brought about one development after another in the forms and methods of the architect. In a treatise so conceived, the fact that the field of observation is practically restricted to France, the few excursions beyond her frontier being made rather with a view to displaying the extent of her influence than with any desire for catholicity of grasp, is of no great moment. The English reader for whom this translation is intended, will get as clear a notion of how Gothic, as he knows it, came into being, as he would from a more universal survey, while he has the advantage of some echo, at least, of the vivacity, which inspires a Frenchman when his theme is "one of the Glories of France."

W. A.

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GOTHIC ARCHITECTURE

INTRODUCTION

THE term *Gothic*, as applied to the architectural period dating from the middle of the twelfth to the end of the fifteenth century, is purely conventional.

The expression is clearly misleading as indicating the architecture of the Goths or Visigoths; for these tribes were vanquished by Clovis in the sixth century, and left no monumental trace of their invasion. Hence, their influence upon art was *nil*. The term is radically false both from the historical and the archæological point of view, and originates in an error which demands the strenuous opposition due to persistent fallacies. By a strange irony of fate the term *Gothic*, used in the last century merely as the opprobrious synonym of *barbaric*, has been specialised within the last sixty years in connection with that polished epoch of the Middle Ages which sheds most lustre upon our national art. And this, in spite of its Germanic origin.

Romanesque architecture, or to be exact, that

architecture which, by virtue of the archæologic convention of 1825, we agree to label Romanesque, undoubtedly borrowed its essential elements from the Romans and Byzantines, modifying and perfecting them by the genius of Western Europe; but the architectural period which began in the middle of the twelfth century, and is so unjustly dubbed *Gothic*, was of purely French birth; its cradle was the nucleus of modern France. Aquitaine, Anjou, and Maine were the provinces in which it first took root. The royal domain, and notably the Ile-de-France, witnessed its most marvellous developments, and it was from the very heart of France that its splendour radiated throughout Europe.

But the tyranny of usage leaves us no choice as to the title of this volume. We are compelled to style it *Gothic Architecture*, though we would gladly have registered our protest by naming it *French Mediæval Architecture*.[1]

[1] This idea, which has recently found support in quarters which might have been considered free from such *chauvinism*, is based upon a narrow and peculiarly modern view of art. Art activities in the Middle Ages were as instinctive and unconscious as speech. The forms of architecture were invented and elaborated much in the same way as language. For the purpose of the historian of architecture, the northern half of France, the three southern quarters of Great Britain, and the districts threaded by the Rhine, form a single country, a single *foyer* of art. They all pressed on from similar starting-points to similar goals; and if the French went ahead in one direction, they fell astern in another. It may be allowed that, on the whole, the architects of the *Ile-de-France* did better than their rivals. Gothic architecture is pre-eminently logical, and logic is pre-eminently the artistic gift of the Frenchman. So that its more scientific development in the "French royal domain" was only to be expected. That success of this kind gives a right to call the whole development "French mediæval architecture" cannot be allowed.—ED.

The term *Gothic* is, however, purely arbitrary, as is also that of *pointed*, which has been introduced by writers who admit the principle of the broken arch as the characteristic of so-called Gothic architecture.

The broken or pointed arch, which is formed by the intersection of two opposite curves at an angle more or less acute, was known to architects long before its systematic application. It occurs in buildings of the ninth century in Cairo, and was used prior to this in Armenia, and still earlier in Persia, where indeed it superseded all other forms of span from the times of the last of the Sassanides onwards. It is an expedient which gives increased power of resistance to the arch by diminishing its lateral thrusts.

The pointed arch is a form which admits of infinite variations. The one law which governs its construction is expediency. It frankly abandons those rules of classic proportion which are the canons, so to speak, of the round-headed arch. Thus we shall find the pointed approximating to the round-headed form in the twelfth century, only to diverge from it more widely than before, till, towards the close of the thirteenth and throughout the fourteenth century, it took on the acute proportions necessitated by a perilous disposition to prefer loftiness to solidity.

Fundamentally, it is of little moment whether the architecture of the twelfth to the sixteenth century be termed Gothic or pointed, when we recognise these terms as equally inexact. The point to be really insisted upon is that the filiation we have already demonstrated in our book on Romanesque Architecture continued slowly, but surely, in the

wake of civilisation, of which architecture is ever one of the most striking manifestations.

So-called Gothic architecture was not the product of a single generation; it was the continuous logical development of the Romanesque movement, just as the latter in its time had been the outcome of a gradual adaptation of old traditions to new-born exigencies. Thus our Aquitainian forbears, by their successful translation into stone of the eastern cupola, prepared the way for the groined vault, the embryo of which is clearly traceable in the pendentives of the dome at St. Front.

The great churches which, towards the middle of the twelfth century, rose throughout the rich Western provinces that cluster about Aquitaine, were all constructed with groined vaults. In these examples we can discern no halting, tentative application of newly adopted principles. The work is that of consummate architects, who brought to their labours the assurance born of experienced skill, and in the later part of the twelfth century, the new system had replaced all others for the construction of vaults throughout Western Europe.

The architects of the royal domain, and notably those of the Ile-de-France, had been the first to adopt the groined vault. Towards the close of the twelfth century their assimilation of the new principles, their native ingenuity, and professional hardihood alike urged them to its further development. They became the inventors of the flying buttress.

The substitution of the groined vault for its parent, the cupola, was the direct consequence of the old tradition. The development was merely a stage in

the march of ideas, a consummation logically arrived at in the track which the Romans, constructors not less bold though more prudent than their artistic progeny, had marked out for them. The groined vault, in short, is simply the growth of Roman principles perfected by continuous experiment. But the flying buttress, or rather the system of construction based on its use, caused a radical change in the art of building of the twelfth century. Stability, which in the ancient buildings was ensured by solid masses at the impost of vaults and arches, was replaced by the balance of parts. From this daring system some of the most marvellous of architectural effects have been won; but the innovation had a dangerous inherent weakness, inasmuch as it involved the exterior position of those essential vital organs for whose preservation the ancients had wisely provided, by keeping them within the building.

It is therefore not surprising that though fifty years after its introduction the groined vault was generally adopted throughout Western Europe, and even in the East, the success of the flying buttress was infinitely more gradual and restricted. Thus, in the North, the multiplication of great religious monuments built, or even rebuilt on the new lines, was simultaneous with the construction in the South of vast churches on the old principles. The adventurous builders of the North had eagerly adopted the new division of churches into several aisles, all with groined vaults, the vault of the great central nave relying upon exterior flying buttresses for resistance to its thrust.

In the South, on the other hand, architects were prudent, either through instinctive resistance to, or

deliberate reaction from, the innovating influence, or by way of fidelity to an ancient tradition. They built with a single aisle, wide and lofty; the vaults were indeed supported by ribs, but their thrusts were received by powerful buttresses inside the walls, the projections thus formed being further utilised for the construction of chapels in the intervals.

This latter system, which has the incontestable merit of perfect solidity, recalls the construction of the Basilica of Constantine, or of the tepidarium in the Baths of Caracalla. The stability of the edifice was ensured by the resistance of masses at the imposts, and the whole principle of construction formed, as it were, a protest against the miracles of equilibrium so much in favour among the Northerners.

The new system of vaults supported by flying buttresses made very slight way in the South. It appears but rarely, and in the few instances where it is used has entirely the air of a foreign importation. Even in the cradle of its origin, it took root slowly and with difficulty, for its first applications were not without disaster. Lacking that mathematical knowledge which is the mainstay of the modern architect, the experimental skill shown by the thirteenth-century builder in constructing his vaults, and then in neutralising their thrusts by flying buttresses reduced to the legitimate function of permanent struts, was little short of miraculous. For it must be borne in mind that the thrust of these vaults, and the strength of the flying buttresses, varied of necessity according to their span, and the resisting powers of their materials. It was only by dint of long gropings in the dark that the necessarily empirical formulæ

of the innovators were gradually transformed into recognised rules, and this knotty problem of construction received no positive solution till the last years of the thirteenth, or more emphatically, the first years of the fourteenth century. While even then the solution could claim no universal acceptance, for what was comparatively easy in countries where stone abounds became difficult, if not impossible, in districts where such a material as brick was the sole resource of builders.

Nevertheless, the growth of Gothic architecture was rapid, so rapid that even in the fourteenth century it began to show symptoms of that swift decadence which is the Nemesis of facile success. The abuse of equilibrium, the excessive diminution of points of support—defects often aggravated by insecurity of foundation and exaggerated loftiness of structure—the poor quality of materials, and the faulty setting thereof due to empirical methods, the over-rapidity of execution caused by mistaken emulation, the dearth of funds consequent on social and political convulsions complicated by the miseries of war,—all these things joined hands for the extinction of a once resplendent art. But the initial cause of its ruin must be sought in its abandonment of antique traditions. These traditions had persisted uninterruptedly throughout the so-called Romanesque period, only to pave the way for a seductive art in novel form, which, casting aside the trammels of the past in obedience to the dictates of the moment, fell on decay as rapidly as it had risen to eminence. Dawning in the France of Louis the Fat, it reached its apogee under St.

Louis, and was in full decadence before the close of the fifteenth century.

The narrow limits assigned to us forbid not only detailed discussion of our great monuments, but even a summary of the most famous. We must be content to work out that theory of evolution already put forward by us in *L'Architecture Romane.* We propose merely to offer a synthesis of that architectural development which succeeded the so-called Romanesque epoch, from its birth in the twelfth to its extinction in the fifteenth century.

And as the groined vault is, broadly speaking, the essential characteristic of so-called Gothic architecture, and the flying buttress one of its most interesting manifestations, we shall make a special study of their origin, their modifications, and their principal applications in connection with religious, monastic, military, and civil architecture. We shall dwell more particularly upon religious architecture as presenting the grandest and most obvious evidences of artistic progress, not in its admirable buildings alone, but in those masterpieces of painting and sculpture to which it gave birth in France.

PART I

RELIGIOUS ARCHITECTURE

CHAPTER I

THE INFLUENCE OF THE CUPOLA UPON SO-CALLED GOTHIC ARCHITECTURE

The cupola, in its symbolic aspect, was the germ, whence sprang an architectural system the revolutionary action of which upon art can scarcely be overestimated. [1]

SO-CALLED Gothic architecture was no spontaneous and miraculous manifestation. Like all human activities, its end is easy to determine; but it is difficult to fix even an approximate date for its beginning. The traces of its origin are lost in that period of architectural activity which preceded it, and prepared its way by a train of unbroken evolution.

The cupola of St. Front, which we may reasonably call the mother cupola of France, was not an imitation of that of St. Mark at Venice, for both were based upon the church built by Justinian at Constantinople, in honour of the Holy Apostles. But the form thus imported into Aquitaine received such modification and development, as to make it virtually an original achievement. One of the knottiest of architectural problems was solved in the

[1] *L'Architecture Romane*, by Ed. Corroyer; Quantin, Paris, 1888.

process, and that admirable constructive principle was established which consists in concentrating the thrust of a vault upon four points of support strengthened by pendentives.

The construction of such a cupola as that of St. Front in dressed stone was an event of great moment in a district which still preserved the Gallo-Roman tradition in its integrity, and was commonly reputed the fatherland of our architecture. Its immediate consequences were shown before the close of the eleventh century by the erection of large abbey churches on the model of St. Front in various neighbouring provinces.

But while accepting the new principle, the architects of the period directed their energies to its perfectibility. Their efforts, and even their successes, in this direction are manifest so early as the first years of the twelfth century. The churches of Angoulême and of Fontevrault may be cited in proof. "We here recognise the main preoccupation of the Romanesque builders—namely, how best to reduce the immense masses of churches built with the primitive cupola by a more deliberate and judicious distribution of thrust and resistance. We further see how the adoption of these principles led to the emphasising of critical points by buttresses, which now began to project from the exterior walls."[1]

The new system spread rapidly, notably in Anjou and Maine, its growth being marked by an ever-increasing refinement and perfection. The architects of the rich abbeys of these provinces, the

[1] *L'Architecture Romane*, by Ed. Corroyer; Quantin, Paris, 1888.

importance of which was aggrandised by their strong attachments to the all-powerful religious organisation of the period, gave a further development to the Aquitainian method. They transformed the pendentives of the cupolas into independent arches which performed exactly the same functions, thus logically working out an architectonic principle of amazing simplicity, the success of which was so rapid that, by the middle of the twelfth century, it was systematically applied to the construction of great churches at Angers, Laval, and Poitiers.

The works of the Angevin architects were of course known to their Northern brethren, who, in common with all the builders of the day, had long been seeking the final solution of the great problem of the vault. The architects of the Ile-de-France at once appropriated the Angevin system with that special professional ingenuity which characterised them, and applied it to the construction of innumerable churches, large and small, all of them built on the basilican plan—that is to say, with three, or even five aisles.

Thus the Aquitainian cupola of dressed stone exercised an absolutely direct influence upon Gothic architecture, since it gave birth to the *intersecting arch*, which is the main feature of so-called Gothic. This influence was first manifested in the general arrangement of single-aisled churches vaulted upon intersecting ribs, the earliest departure from the original cupola. It was then more grandiosely demonstrated in vast abbey or cathedral churches, built in accordance with the basilican tradition, and all vaulted on the new principle.

Angers and Laval are primitive examples of churches whose square compartments carry groined vaults, which thenceforth took the place of cupolas with pendentives.

The abbey church of Noyon shows the application of this principle, novel in the twelfth century, to the several-aisled churches of the Northern architects. The *original* vaults of Noyon [1] were planned in square. The intersecting arches united the principal piers diagonally, the strain being relieved by a subordinate or auxiliary arch which rested upon secondary piers, indicated on the exterior by buttresses less salient than those of the main piers, and on the interior by a column receiving the lateral archivolts which united the chief piers.

This system of construction, the principle of which was logically developed at Noyon, for instance, no longer exists, save in its traditional state in the great churches of Laon, and in the cathedrals of Paris, Sens, and Bourges, to name but the principal, without regard to the innumerable churches built on these principles throughout Western Europe. In these great buildings the vaults were all square on plan down to the adoption in the first half of the thirteenth century of equal bays, vaulted on a rectangular plan, and marked inside and out by equal piers and projections, as at Amiens, Rheims, and many other churches of the period.

Hence we see how incontestable was the influence

[1] The original disposition of the vaults built about 1160 is indicated by the spring of the arches above the capitals, and by the base plan of the principal piers. The present vaults on rectangular plan were built after the fire of 1238, in accordance with prevailing fashions.

of the cupola upon so-called Gothic architecture. This truth is demonstrated by monuments yet in existence, lapidary documents above suspicion. It cannot be insisted upon too strongly, not merely for the satisfaction of archæologic accuracy, but more especially as yet another proof that the filiation between the art of the ancients and that of the so-called Romanesque architects is no less evident than that which links together the Romanesque and the so-called Gothic. Of this latter filiation we have a direct proof in the Aquitainian cupola, the parent of those of Angoumois, which in their turn gave birth to the Angevin intersecting arch, and so prepared the way for the flying buttress, which again was to mark a new departure.

CHAPTER II

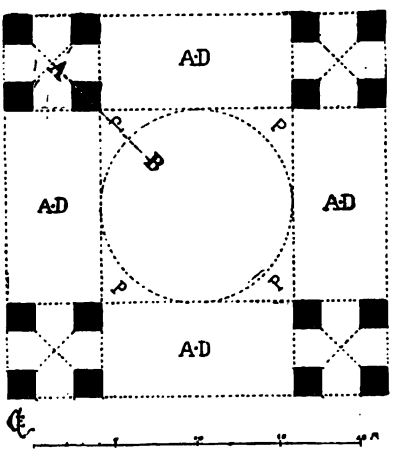
THE ORIGIN OF THE INTERSECTING VAULT

So early as the eleventh century churches were built with one or several aisles, and in this latter case the side aisles only had ribbed vaults, the nave being covered by a timber roof. The next step was to vault all three aisles, buttressing the barrel-vaulted nave by continuous half-barrel vaults or ribbed vaults over the aisles, and further strengthening it by projecting transverse arches, or *arcs doubleaux*, the whole being crowned by a roof which embraced the side aisles. These cumbrous and timidly constructed buildings were merely imitations of the Roman basilicas. To ensure their solidity they had perforce to be narrow; and the necessary abolition of top lighting made them gloomy. We find then that, before the appearance of the cupola, mediæval architects were perfectly acquainted both with the barrel vault and the ribbed vault, the latter formed, on traditional principles, by the interpenetration of two demi-cylinders. They had even attempted to improve upon the construction by strengthening the line of penetration with a salient rib, giving an elliptic arch. But this rib was purely decorative, for

in the Roman vault the stones at the line of intersection, whether ribbed or not, were in complete solidarity with the filling on either side in which they were buried.

It follows that we shall seek in vain in the Roman ribbed vault the germ of the intersecting arch, with its essentially active functions.

For the origin of the intersecting arch we must turn to the eleventh century. We shall find it in the dressed stone cupola of St. Front, and more especially in its pendentives.

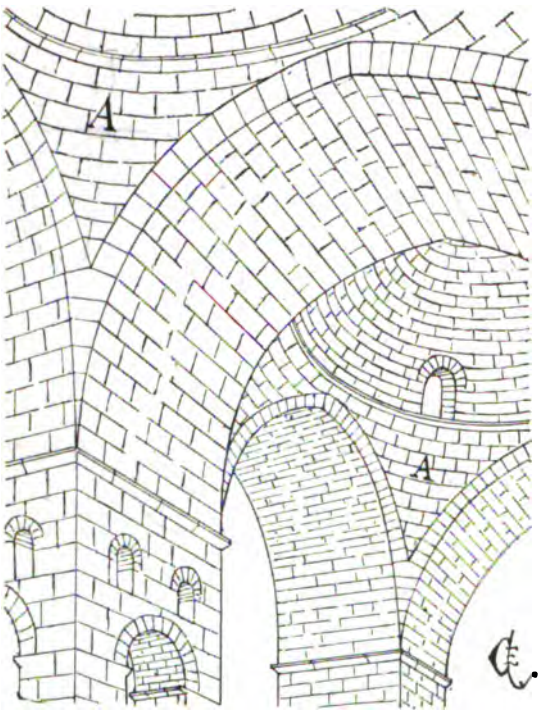


1. PLAN OF A CUPOLA OF THE ABBEY CHURCH OF ST. FRONT AT PÉRIGUEUX

Fig. 1 gives the plan of one of the cupolas of St. Front. It is composed of four massive transverse arches, the thrusts of which are received upon four piers united by pendentives (Figs. 2 and 3) passing from the re-entering angles at the spring of the arches to the base of the circular dome itself, each of the concentric courses bearing upon the keys of the *arcs-doubleaux*, and transmitting to them, and therefore to the piers by which they are supported, the weight of the cupola itself.

Fig. 3 is a section through one of the pendentives of St. Front, following the line A B in Fig. 1. It

shows that the first six courses are cut so as to make what is called a *tas de charge*; the upper surfaces are horizontal, the faces curved to the radius

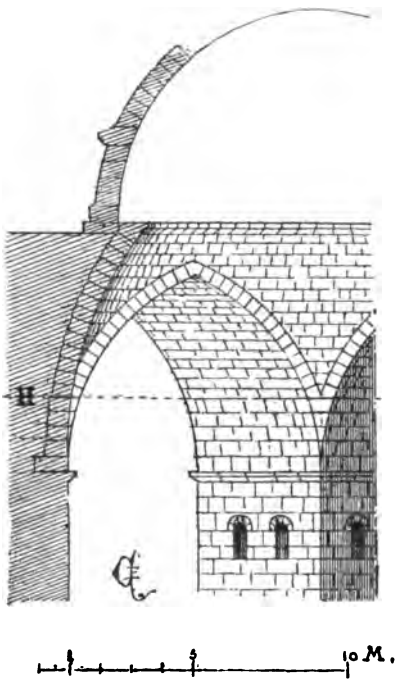


2. PENDENTIVE (MARKED A) OF A CUPOLA OF THE ABBEY CHURCH OF ST. FRONT

of the dome itself. After the sixth course the voussoirs are cut normally to the curve of the arch. The vaulting of religious buildings having long been the crux of mediæval architects, the construction of

the St. Front cupolas must have been an event much noised abroad, for towards the close of the eleventh century a large number of churches with cupolas were built in imitation of the mother church at Périgueux.

The construction of the churches of Angoulême and Fontevrault in the first years of the twelfth century shows that the architects were attempting to cover spaces of ever-increasing span on the Aquitainian model, while at the same time they set themselves to lighten their vaults, and consequently to reduce their points of support.

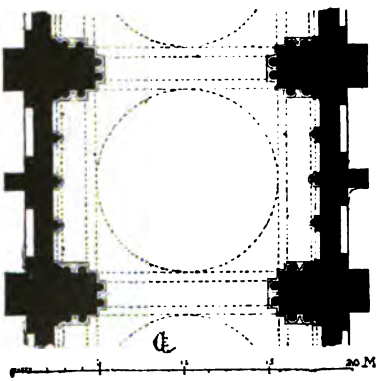


3. SECTION OF A PENDENTIVE ON THE DIAGONAL A TO B IN PLAN, FIG. 1

Fig. 4 gives the plan of one of the cupolas of Angoulême or of Fontevrault, both being built on precisely similar plan, with the exception of the number of bays to the nave.

Fig. 5 gives the section of a bay in one of these churches, and illustrates the considerable difference

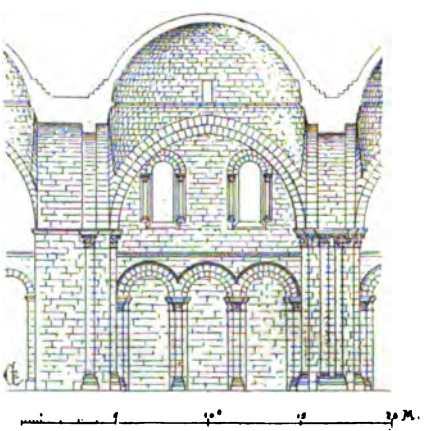
already existing between the mother cupola of St. Front and its offspring. The cupola on pendentives begins to show a certain attenuation, and we shall presently note a fresh step forward towards the solution of that problem so persistently grappled with by the mediæval architect — how to reduce the weight of the vault.



4. PLAN OF A CUPOLA OF ANGOULÊME OR FONTEVRAULT

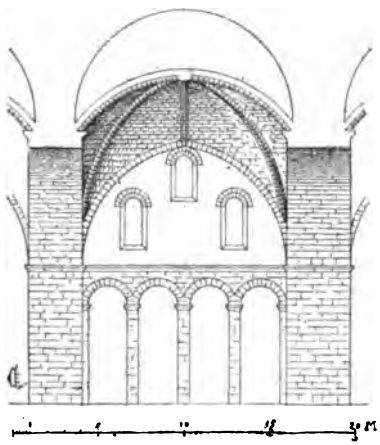
The Church of St. Avit-Sénieur furnishes a most instructive example.

The cupola of this building is strengthened by stiffening ribs. It becomes an annular vault, formed of almost horizontal keyed courses, sustained by transverse and diagonal ribs, which act the part of a permanent centering.



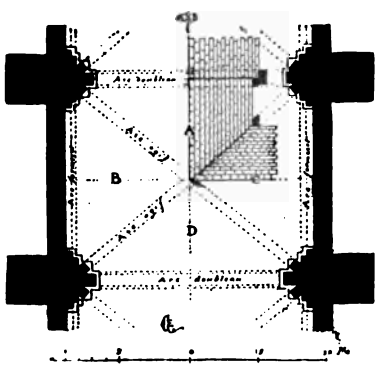
5. SECTION OF A BAY OF THE CUPOLAS OF ANGOULÊME

The Church of St. Pierre at Saumur marks a further step onwards in the construction of vaults derived from the cupola.[1]



6. SECTION OF A BAY IN THE CHURCH OF ST. AVIT-SÉNIEUR

Finally, the architects of Maine and Anjou achieved the long-desired consummation. Under their treatment the pendentives resolved themselves into their actively useful elements, the visible signs of which were diagonal or intersecting arches, salient and independent, set in precisely the same manner as the pendentives of the cupola (Fig. 3), and performing identical functions (Fig. 8).

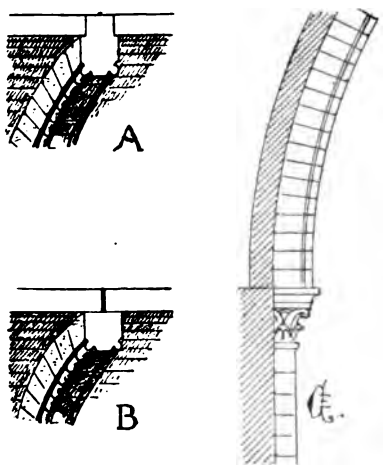


7. PLAN OF VAULT ON INTERSECTING ARCHES

The vault proper is no longer formed of concentric courses, as in the mother cupola. It consists thenceforward of voussoirs cut normally

[1] *L'Architecture Romane*, by Ed. Corroyer.

to the curve, and filling the triangles (A, B, C, D, Fig. 7) determined by the longitudinal, the diagonal or intersecting, and the transverse arches. These arches form a stone skeleton, no less solid though far less ponderous than the cupola pendentives, and sustain the vault by distributing its thrusts over four points of support.



8. SECTION OF AN INTERSECTING ARCH

The triangular fillings no longer imprison the ribs, or, more exactly speaking, the intersecting arches, nor do they any longer neutralise their active functions. These fillings, on the other hand, have, like the intersecting arch, gained a new independence. They now contribute to the elasticity of the divers organs of the vault, a most essential element in its solidity. The peculiar arrangement of the intersecting arches in the nave of Angers gives incontrovertible proof of the direct filiation of this building to the Aquitainian cupola. The voussoirs of the intersecting arches are about equal in horizontal section to those of the transverse arches, while their vertical section equals the thickness of the filling plus the internal salience which marks their function. They look in fact like slices cut from the pendentives of a cupola (A, Fig. 8).

It must be remarked, too, that at Angers the stones of the filling do not yet rest upon the extrados of the ribs, in the fashion adopted some years later in the Ile-de-France and elsewhere (see B, Fig. 8), but embrace them (as at A).

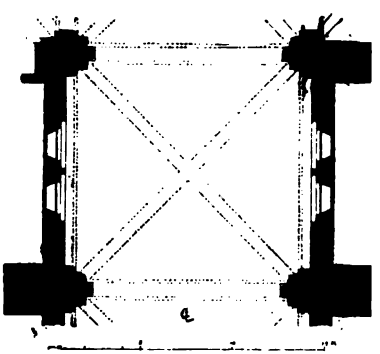
The identity of function in the pendentive and in the Gothic intersecting arch, both constructed, as they are, of stones dressed normally to their curves, shows that they sprang from a common origin, which is as much as to say that the Aquitainian cupola begat the intersecting vault.

CHAPTER III

THE FIRST GROINED VAULTS

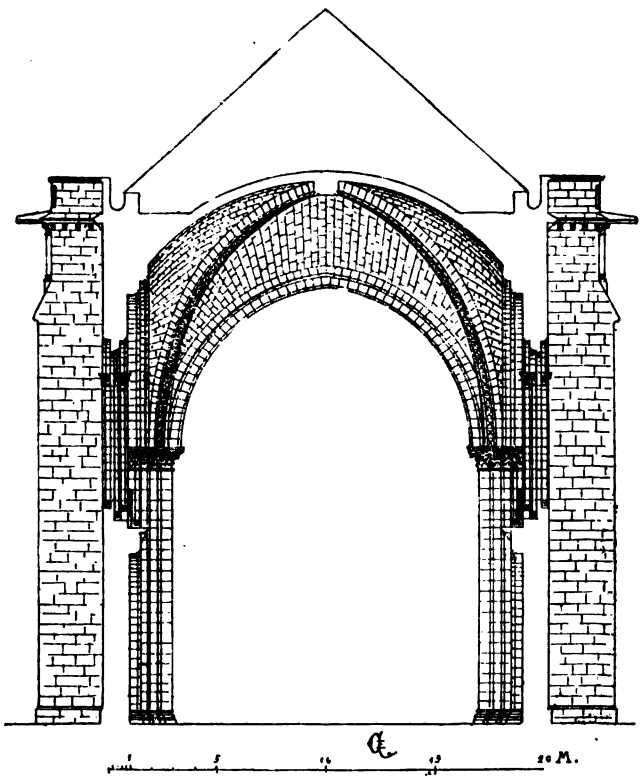
THE first application of the system of intersecting vaults appears in the great churches of Angers and Laval.

It is probable that the new methods propagated by the religious architects of Aquitaine and neighbouring provinces had excited the emulation of the Northern builders, more especially those of the Ile-de-France. Evidences to this effect are to be found in certain subordinate portions of their buildings at this period, such as side aisles or apsidal chapels. Their timid arrangement seems, however, reminiscent of the Roman system of ribbed vaulting, with a slightly increased prominence of the ribs superadded, rather



9. PLAN OF A BAY IN THE NAVE OF ST. MAURICE AT ANGERS

than of the revolution that had been effected in church vaulting generally.

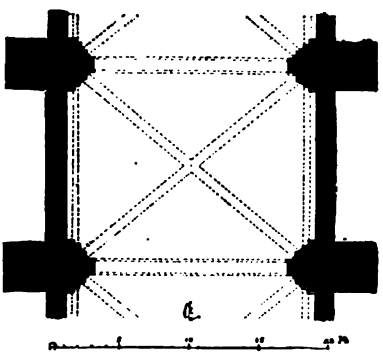


10. TRANSVERSE SECTION OF THE NAVE OF ST. MAURICE AT ANGERS

But, if we except perhaps Laval, nowhere shall we find the new system of vaulting upon intersecting arches more mightily demonstrated than at Angers, the aisles of which measure 54 feet across. The

grandeur of the architectural composition, no less than the admirable technical skill shown in the details, gives proof of the consummate mastery arrived at by the builders of these noble structures so early as the middle of the twelfth century. The plan of these churches resembles that of Angoulême and Fontevrault. It is in no way allied to the Northern buildings.

They are constructed with single aisles, like the cupola churches, with a series of bays, square on plan; but the arrangement of the vaults has been perfected by the logical use of intersecting arches in the place of pendentives, the architects of the day having realised by this time the progress we have explained and demonstrated in the preceding chapter.

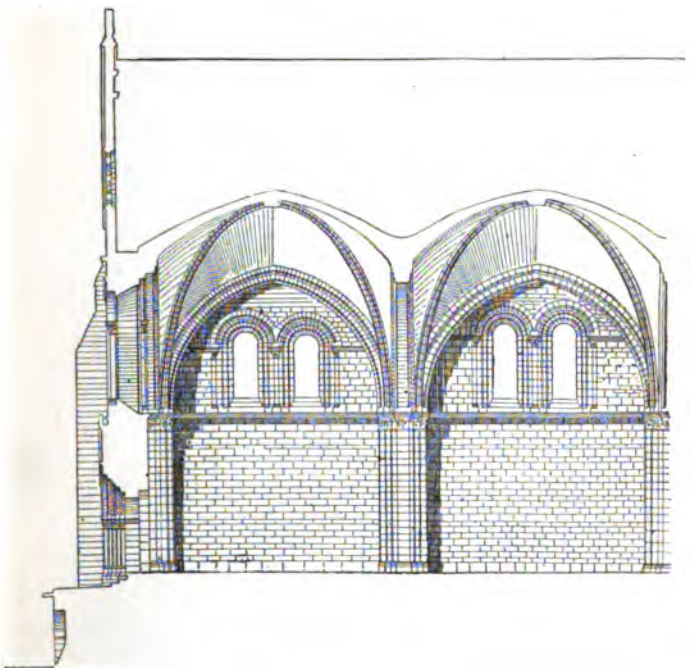


11. PLAN OF A BAY OF THE NAVE IN THE CHURCH OF LA STE. TRINITÉ AT LAVAL

These vast aisles, vaulted on intersecting arches, are of course allied to the cupolas; they recall their general outline, but the arrangement of the vaulting is different. The intersecting ribs are no longer merely decorative features; they have taken on all the active functions of the *arc-doubleau* and the formeret. Their union constitutes an elastic ossature, the weight being concentrated upon four points of support, which receive the impost of the arches, and

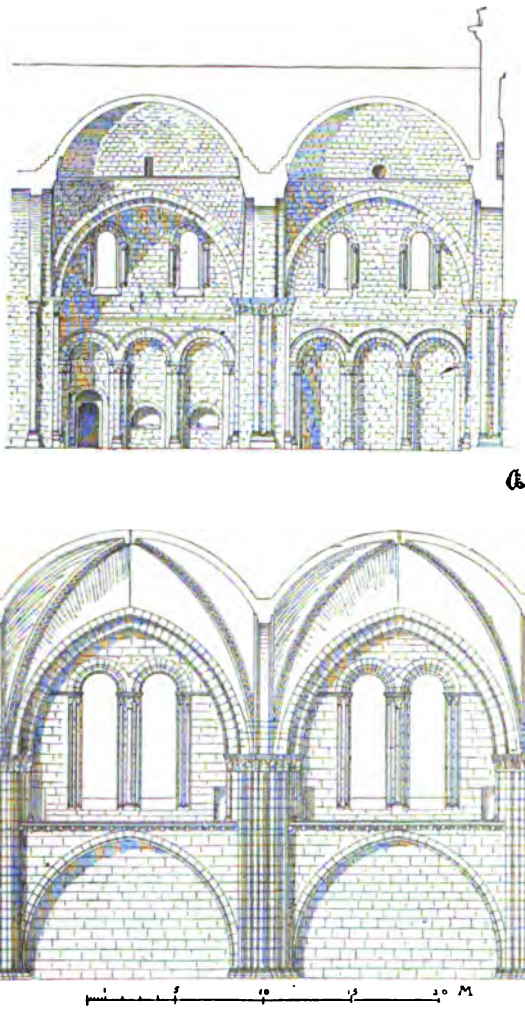
compose a stone skeleton, each unit of which has been cut and dressed to fill the exact place it occupies in the whole.

If we compare the sections (Figs. 13 and 14) of



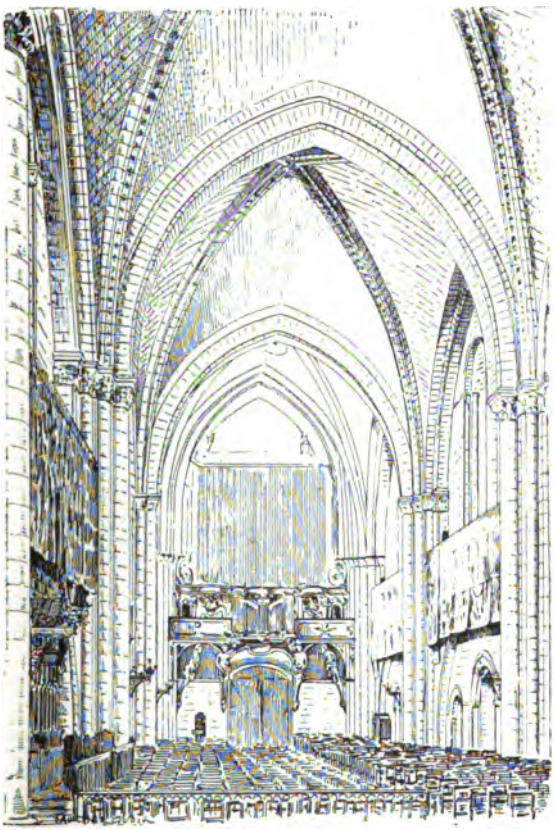
12. LONGITUDINAL SECTION OF TWO BAYS IN THE NAVE OF LA STE. TRINITÉ AT LAVAL

the churches of Angoulême and Angers, we may clearly trace the filiation between these buildings, the one dating from the first years of the twelfth century, the other from some thirty or even forty years later. We shall also note the advance made by the Angevin architects in the construction of groined vaults in the



13 AND 14. COMPARATIVE SECTIONS OF THE CHURCHES OF ANGOULÊME AND ANGERS

place of domes with pendentives, a development



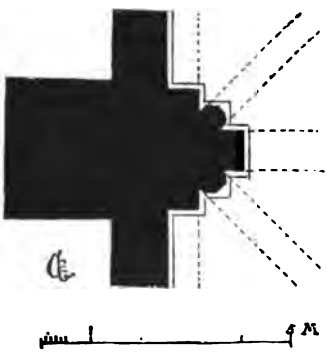
15. VIEW IN PERSPECTIVE OF THE NAVE VAULT OF ST. MAURICE AT ANGERS

worked out by the more perfect and reasoned application of the same architectural principle.

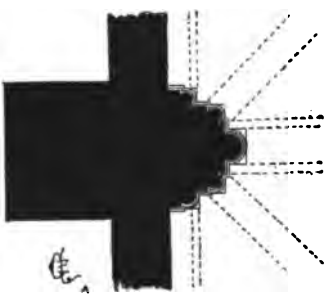
The Church of Laval, built simultaneously with

that of Angers, or only a few years later, shows a further advance, not merely in the matter of form, but in the increased science and ingenuity of combinations, and the methodical accuracy of the execution.

The arches which compose the ossature of the vaults become independent in their functions, as at Angers, immediately upon leaving the abacus, an



16. PLAN OF A SUMMER OF THE NAVE VAULT OF LA STE. TRINITÉ AT LAVAL



17. PLAN OF ONE OF THE PIERS OF THE NAVE OF LA STE. TRINITÉ AT LAVAL

essential characteristic of the new system. The lateral points of support are composed of piers proper and of clustered columns, crowned by corbelled capitals, which, by prolonging them, mark the formerets, the diagonal, and the transverse arches as they fall upon the abaci. It is easy to see in this arrangement the origin of those clustered shafts so generally and even excessively used in the thirteenth and fourteenth centuries, the main object of which was to conceal as far as possible the points of support.

These details, and the section (Fig. 12) showing the mode of construction in the vaults, demonstrate sufficiently that at Laval, no less than at Angers, a direct filiation exists between the dome upon pendentives and the groined and ribbed vault.

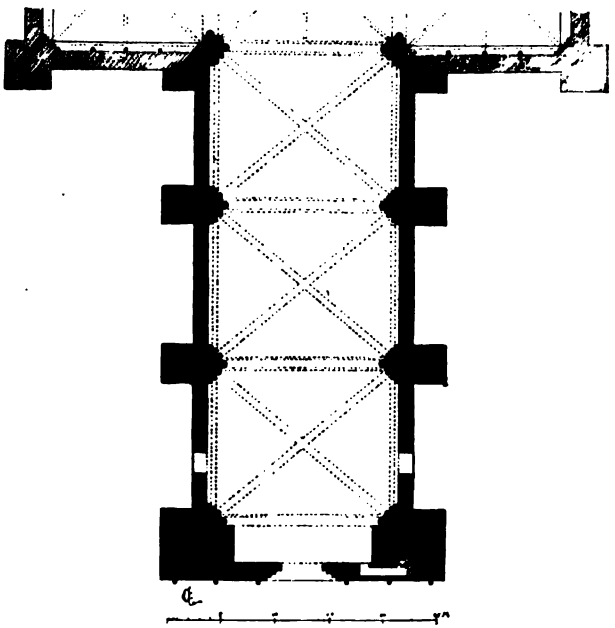
CHAPTER IV

BUILDINGS VAULTED UPON INTERSECTING ARCHES

THE new system derived from the domes upon pendentives, so brilliantly applied in Anjou and Maine in the first half of the twelfth century, was thenceforth the normal method of the religious architect. The admirable simplicity of the new method and its adaptability to every class of building, from the great abbey church to the modest chapel, sufficiently accounts for its rapid dissemination throughout Western Europe, where religious bodies had founded innumerable abbeys, large and small, of varying rules and orders, but all welded together by one mighty organisation.

A long array of churches on the Angevin model rose, not only in the neighbouring provinces—as Ste. Radegonde at Poitiers, Notre Dame de la Coulture and the nave of St. Julien at Mans,—but farther afield towards the south. To name only the most important—the charming Church of Thor, dedicated to Ste. Marie du Lac, between Avignon and the fountain of Vaucluse; that of St. Sauveur at St. Macaire, near Bordeaux; the nave of St. André at Bordeaux, begun in 1252 on the cupola plan, but modified and finally

crowned with a groined and ribbed vault; St. Caprais at Agen, which shows the same modifications, and lastly, the immense brick nave of St. Etienne at Toulouse, which measures 64 feet—all demonstrate

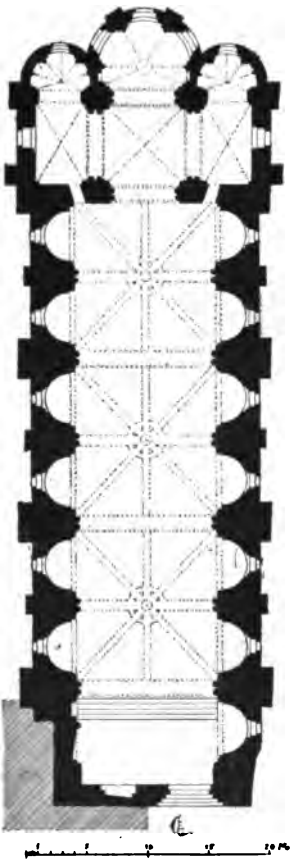


18. PLAN OF THE NAVE, ST. MAURICE AT ANGERS

the progression of the new principles in the second half of the twelfth century.

Towards the North the advance was no less general. Various buildings show to what excellent account contemporary architects had turned the system of vaults on intersecting arches, recognising

its admirable adaptability to different climates, and to the most diverse materials. But it was reserved for Angers, the cradle of its birth, to give an added perfection to this ingenious system.

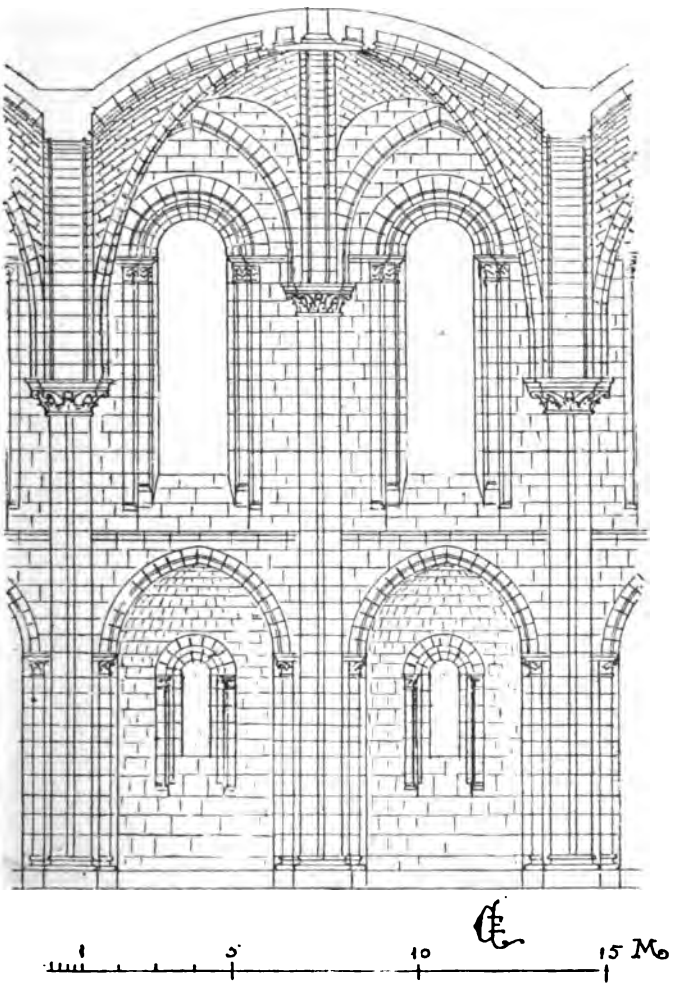


19. PLAN OF THE CHURCH OF LA STE. TRINITÉ AT ANGERS

The Church of the Ste. Trinité, on the right bank of the Maine, built by the sons or pupils of those architects who had planned St. Maurice for the hill on the opposite shore, marks a fresh advance in the construction of these vaults. Like St. Maurice, it has but a single aisle, which is divided into three bays, each as nearly as possible square on plan. The system of vaulting takes on a greater elegance by the insertion of a transverse arch, with its supporting shafts, in the centre of each bay. This divides the bay into two equal parts, and, cutting the diagonal ribs at their intersection, supports them at the critical point.

Fig. 19 gives the plan of these vaults, the system of which was eagerly seized upon by the Northern

architects, and the great abbey church of Noyon



20. LONGITUDINAL SECTION OF A BAY OF LA STE. TRINITÉ AT ANGERS

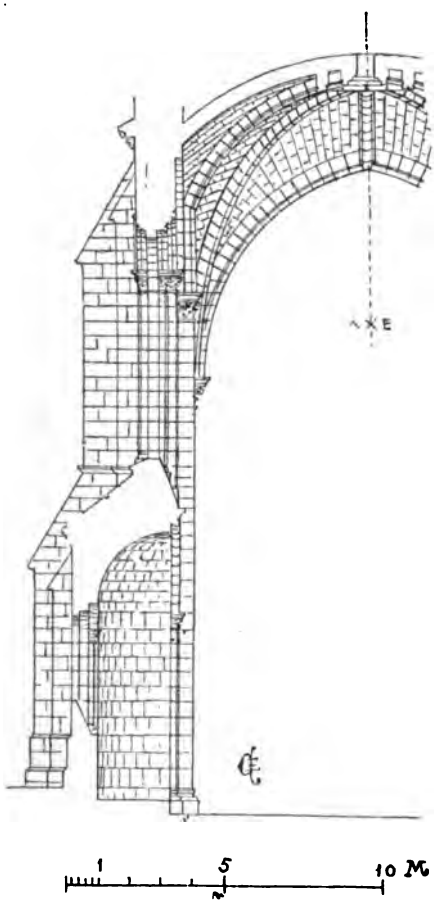
appears to have been the first-fruits of this new development of the Angevin idea.

The great abbey churches and immense cathedrals which were built from the second half of the twelfth to the middle of the thirteenth century attest the importance of the development carried out at Angers by the arrangement of their own vaults in square compartments. For we now find this system adopted in the construction of the churches or cathedrals of Noyon, Laon, Notre Dame at Paris, Sens, and Bourges, to name only acknowledged masterpieces of so-called Gothic.

The influence of the cupola, which we established in our first chapter, was both direct and consecutive. It was direct in churches built with one aisle and vaulted on intersecting arches, and consecutive in the so-called Romanesque churches, which were either completed or modified on the new lines by the substitution of vaults on intersecting arches of dressed stone for timber roofs. A large number of buildings in England, Normandy, Germany, Northern Italy, Switzerland, the Rhine Provinces, and those of Northern France bear testimony of the highest interest to the transformations consequent on the invention of the groined vault and its universal application.

Architects who had been trained in the great abbey schools, emboldened by the successes of their forerunners and their own individual experience, raised on every hand vast cathedrals, in which every known development of the system was essayed with unequalled daring. Going on from strength to strength, they eventually abandoned the antique

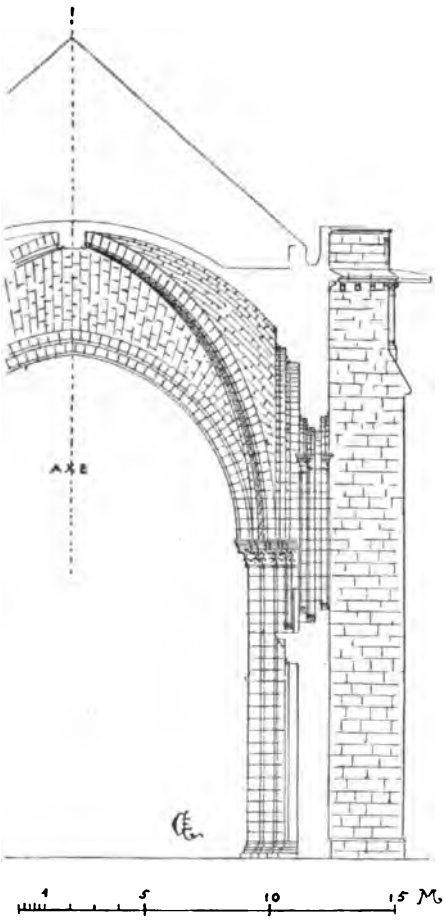
traditions, and disregarding the statical conditions



21. TRANSVERSE SECTION OF A BAY OF LA STE. TRINITÉ AT ANGERS

which ensured the solidity of the ancient buildings,

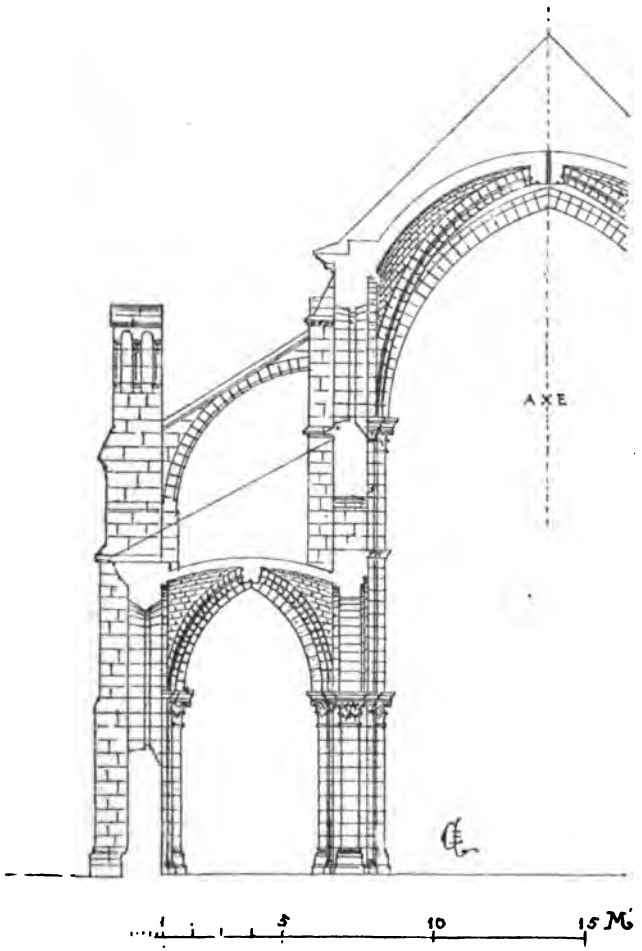
they invented a system of construction which is, as it



22. SECTION OF A SINGLE-AISLED CHURCH VAULTED ON INTERSECTING ARCHES WITH BUTTRESSES

were, merely a skeleton in stone, a stone version of

the timbered roof; its characteristic expression was



23. SECTION OF A THREE-AISLED CHURCH VAULTED ON INTERSECTING ARCHES WITH FLYING BUTTRESSES

the permanent strut known as the *flying buttress*; its governing idea was equilibrium, for which it provided by architectural stratagems ingenious in the highest degree, but also extremely precarious. Its existence or stability depends for the most part on the quality of the materials and their degrees of resisting power, the essential organs, by which I mean those vital *weight-carrying* portions, the failure of which would involve the ruin of the whole, being *outside* the building, and therefore exposed to all those deteriorating influences from which the *load* they bear, that is to say, the vaults, are protected by walls and roof.

The great buildings constructed on these new principles consisted of a central nave with two, or even four side aisles. The huge structure depended for its light first upon low windows in the collateral portions, secondly, upon windows at a much higher level. Hence it became necessary to raise the vault of the central nave, and to give it an abutment in the form of *detached semi-arches* or flying buttresses. The crowns of these semi-arches impinged the piers at the planes of greatest pressure and received the collective thrust of all the ribs, formerets, transverse and diagonal arches. Their bases rested upon abutments, the strength of which was calculated according to the thrust they had to meet.

CHAPTER V

ORIGIN OF THE FLYING BUTTRESS

THE primitive method of vaulting adopted in the central provinces of France in the construction of churches with three aisles rendered such buildings of necessity low and heavy. The main aisle being covered by a barrel vault, supported on either side by a continuous half-barrel vault, the sole means of lighting lay in the windows of the side aisles, so that the nave was always gloomy in the extreme. The Norman architects had avoided this difficulty, first in their native province, and afterwards in England, by vaulting the subordinate aisles only, and by raising the lateral walls of the nave high enough to allow a line of windows to be introduced between the lean-to roofs of the side aisles and the nave roof, the latter being an open timber construction instead of a vault.

The lateral gallery in the first story of Norman churches built on the basilican model is merely a development of the ancient tradition.[1] It bears the name of triforium because—or so we are told—each

[1] See *L'Architecture Romane*, by Ed. Corroyer; Maison Quantin, Paris, 1888, chaps. i. iii. and iv.

compartment of such an interior gallery between the main piers of the nave was originally divided into three by pillars supporting lintels or by small columns supporting an arcade.

Towards the close of the eleventh century Norman architects on both sides of the Channel were raising vast churches, the side aisles of which bore above their ribbed vaults galleries after the fashion of the primitive basilicas. These galleries in their turn were covered by open timber roofs like that of the nave. The bays were emphasised in the nave and in the side aisles by transverse arches, or *arcs-doubleaux*, which served as buttresses to those of the main vault. But after the adoption, towards the middle of the twelfth century, of the Angevin method of vaulting for religious buildings, the functions of the lateral walls and of the supporting arches became better defined, for these walls and arches had now to meet the thrusts of the transverse as well as that of the diagonal arches, which, meeting in bundles, as it were, at each pier, gathered their energies at well-marked points.

It was thus that the cross walls or *arcs-doubleaux* of the side aisles were gradually modified till they became detached semi-arches concealed beneath the outer roof of the side aisles.

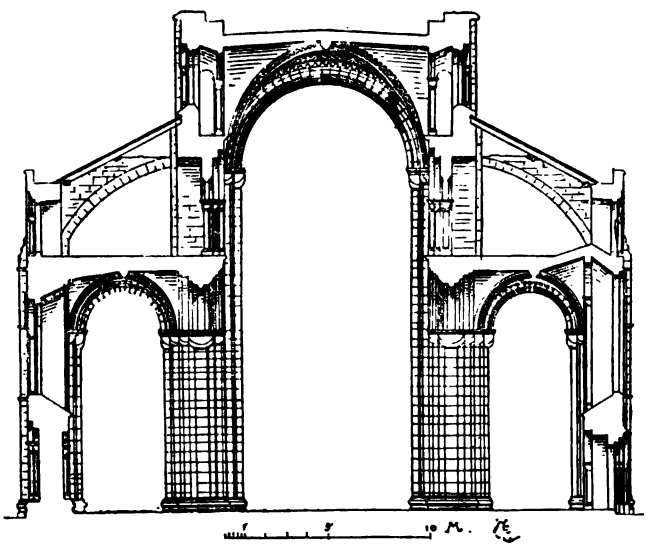
We have traced this modification in the Abbaye aux Dames at Caen.[1]

Fig. 24 shows us an English example. It may be followed out in a number of other churches in England, at Pavia in Italy, at Zurich in Switzer-

[1] *L'Architecture Romane*, by Ed. Corroyer; Paris, Maison Quantin, 88, chap. xvii.

land, and at Basle on the Rhine, to name but a few of the churches in which the modification of the vaults was long posterior to the construction of the building itself.

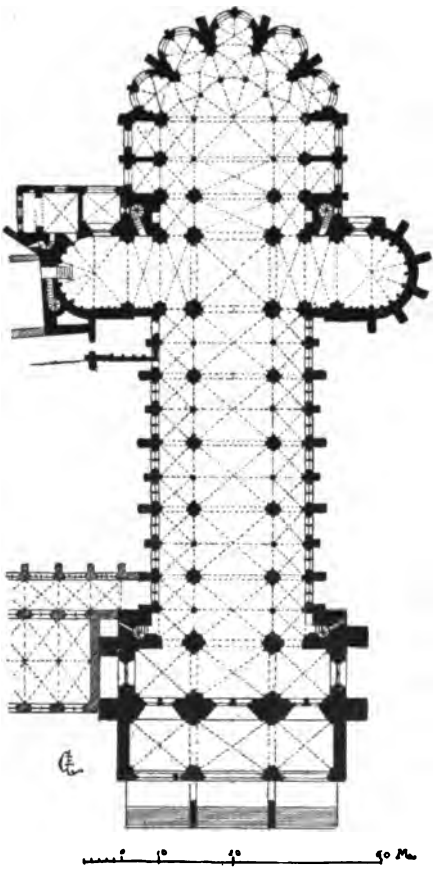
In France we shall find no example more deeply interesting than Noyon, which at the date of its



24. DURHAM CATHEDRAL. TRANSVERSE SECTIONS

construction (the last quarter of the twelfth century) formed, as it were, an epitome of the advance so far made by the architects of the Ile-de-France. In this curious building we find a fusion of the antique tradition developed by the Normans in their triforiums, and of the Angevin methods, as manifested in the groined vaults derived from domes: methods further perfected by the example of La Ste. Trinité

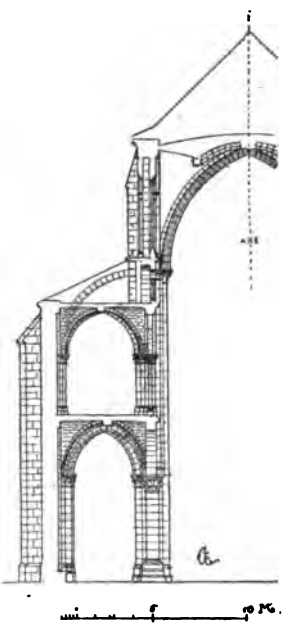
at Angers; in other words, by the adoption of inter-



25. ABBEY CHURCH AT NOYON. PLAN

secting arches planned on a square, the thrusts of all being received on the main piers, reinforced by an

intermediate transverse arch. And we note the appearance of the detached semi-arch beneath the roofing of the inferior aisles merging at its springing into the lateral *arc-doubleau*, and so resisting the thrust of the intersecting arches and transverse arches of the nave.

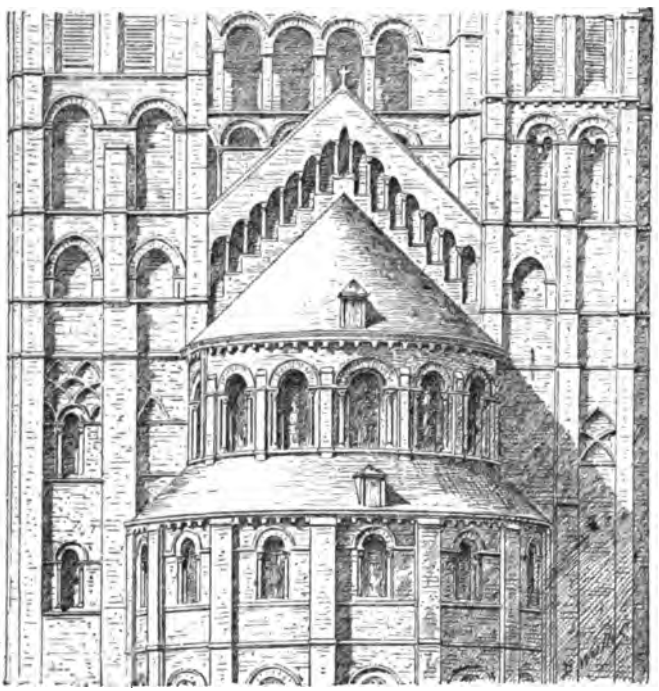


26. TRANSVERSE SECTION OF NOYON CHURCH

It has been said that Noyon was suggested by Tournai, doubtless on account of their superficial affinities. But the likeness is merely in general aspect, the methods of construction being wholly different. At Tournai the apsidal transepts are vaulted upon transverse arches of great strength, and upon radiating semi-arches united where they meet by a ring of voussoirs set horizontally, and at their springing by vaults keyed into their mass, an ingenious arrangement which recalls the vaulting of the *Salle des Capitaines* over the porch of the monastery church at Moissac.

The combination of these *arcs-doubleaux*, which, in addition to the solidity of their independent structure, are strongly reinforced by the massive circular courses of the walls, is very peculiar, for it dispenses altogether both with auxiliary arches and

with abutments. Tournai, therefore, cannot be held to have begotten Noyon, for here we have groined

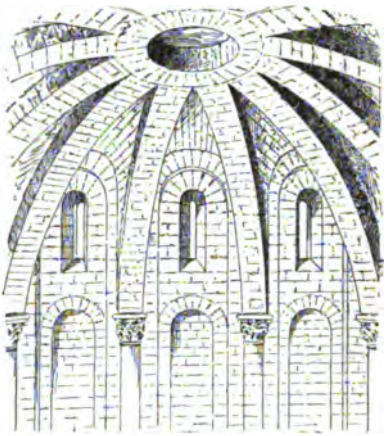


27. CHURCH OF TOURNAI, BELGIUM. EXTERIOR VIEW OF THE NORTH TRANSEPT TOWARDS THE SCHELDT

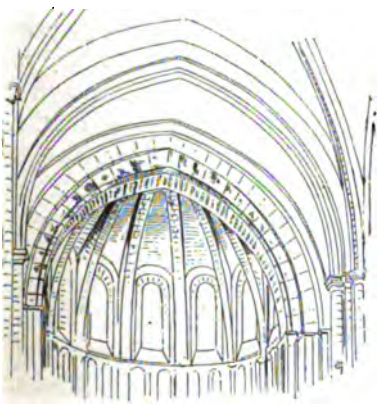
vaults, the intersecting arches of which demand the reinforcement of abutments either concealed or apparent to sustain the thrust of these vaults over the lateral *arcs-doubleaux*. The ingenious arrangement above cited had in no sense modified the methods of abutment followed by the architects of

the twelfth century even after the adoption of the vault on intersecting arches. These, as will be remembered, consisted in buttressing the walls and piers of the nave by cross walls or by arches concealed beneath the roofing of the side aisles.

We find at Soissons the first application of an architectural system, the special feature of which is the *flying buttress.*



28. MONASTERY CHURCH AT MOISSAC. VAULT OF THE HALL KNOWN AS THE HALL OF THE CAPTAINS ABOVE THE PORCH



29. CHURCH OF TOURNAI, BELGIUM. INTERIOR OF THE NORTH TRANSEPT

The south transept of Soissons Cathedral was evidently suggested by Noyon. This is apparent in the adoption of the two-storied side aisle and in the semi-circular plan. But the method of vaulting common to both churches has a greater refinement at

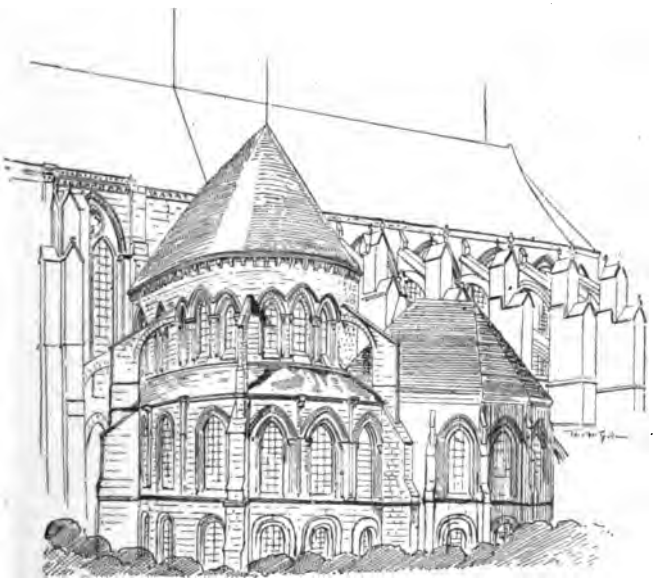
Soissons. Reduced to its simplest expression of strength by the attenuation of its skeleton, the vault still exercises its full thrust on those parts which rise above the upper gallery.

30. SOISSONS CATHEDRAL. SOUTH TRANSEPT. SECTION OF FLYING BUTTRESS

The architect of Soissons was not content, like his brother of Noyon, to support the vault laterally by interior arches collaborating with the *arcs-doubleaux* of the triforium, and reinforced by an abutment impinging on the wall of the central nave. To him the idea occurred of detached semi-arches in open air, springing from above the roof of the triforium and its buttresses and marking each bay. Thus was born the *flying buttress*, a feature frankly emphasising its special aim and function, namely, to meet the thrust of the main vault at its points of concentration.

The flying buttress, in combination with the intersecting arch, gave

birth to a new system of construction, a system on which were raised vast buildings which compel our admiration and demand our careful study, but should



31. PERSPECTIVE VIEW OF SOUTH TRANSEPT, SOISSONS CATHEDRAL[1]

not invite our imitation. They are monuments to the ingenuity of the twelfth and thirteenth century

[1] These flying buttresses, in themselves insufficient for the task laid upon them, and worn by the destructive action of the weather, were pushed entirely out of shape by the constant pressure from within, the thrust of the vault being aggravated by the circular plan of the building, while the vaults themselves became dislocated by reason of their insufficient abutments. It became necessary to reconstruct the buttresses in 1880, to avert the total collapse of the south transept.

The reconstruction of these flying buttresses, and of many others of the same period, furnishes us with a criticism *ad hominem* upon the system.

architect, but no less are they beacons warning against the perils of a rationalism—more apparent than real—which their authors carried to its extreme limits, casting to the winds all traditional principles, and consequently all authority.

It would seem as though the architects of this period, emboldened by such achievements as the churches of Noyon, Soissons, Laon, Paris, Sens, and Bourges, and spurred by professional emulation, went on from one feat of daring to another, passing from the triumphs of Rheims, Amiens, and Mans to the supreme architectural folly of Beauvais, and creating monuments no less amazing in dimension than in the statical problems grappled with, if not always solved.

CHAPTER VI

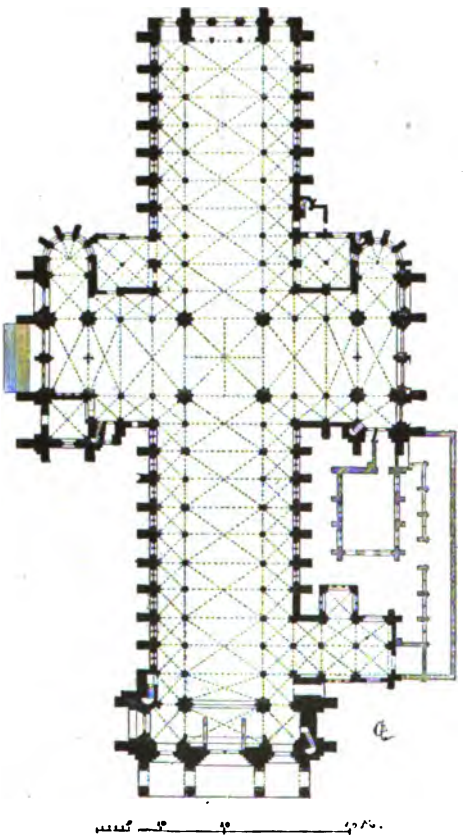
CHURCHES AND CATHEDRALS OF THE TWELFTH AND THIRTEENTH CENTURIES

THE study of mediæval architecture is one of the most fascinating of pursuits, but it is one beset with difficulties. The obscurity in which the origin of our great monuments is buried is profound and often impenetrable.

A fertile cause of error is the confusion which in many cases has arisen between the dates of foundation and of consecration. Very often a church was built and afterwards considerably modified, rather than actually reconstructed, on the same consecrated site.

Lightning was the most frequent cause of the destruction, total or partial, of mediæval churches. Striking the steeple, the tower, or the roof, it fired the timber superstructure of the nave. This in itself would not have been an irreparable disaster; but as the timbers gave way the calcined beams charred the piers, and so prepared the downfall of the whole building, which was then either restored or reconstructed in the fashion of the day. Hence, whether we base our deductions upon more or less

trustworthy records or upon contemporary readings of existing data, the result is too often a confusion



32. CATHEDRAL OF LAON. PLAN

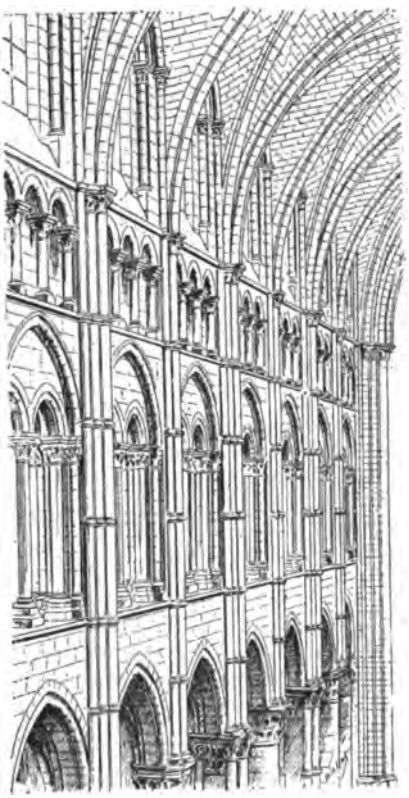
among vanished monuments, or a contradiction between the buildings as they now exist and the historic records which relate to them.

Nothing is easier for interested theorists than to post- or ante-date the structure of a building. They have nothing to fear from the testimony of writers, and, with very few exceptions, it is difficult to assign a precise date to the construction of great churches and cathedrals or to point with certainty to their architects. The obscurity of these great artists is perhaps to be accounted for by the fact that they were ecclesiastics. As such the honour of their achievements belonged not to the individual, but to the corporate body, the *order* of which they were members, and members moreover who had, in most cases, taken the vow of humility.

Modern science, architectural and archæological, has failed to throw much positive light on this subject. It contents itself for the most part with ingenious hypotheses and learned deductions which leave us still in doubt as to precise dates. But we shall at least find some sort of foothold in a careful architectural survey of buildings themselves. This should be, of course, supplemented by study of historic records, and such a study will convince us that art in the Middle Ages, as in all epochs, obeyed the immutable laws of filiation and transformation. We shall follow the artist step by step, observing his research, his hesitation, his errors, and even his corrections.

These are trustworthy documents in which to study the origin of a building and to note its successive transformations, which latter were far more frequent than total reconstructions. For it was not until the beginning of the thirteenth century that great cathedral churches in any con-

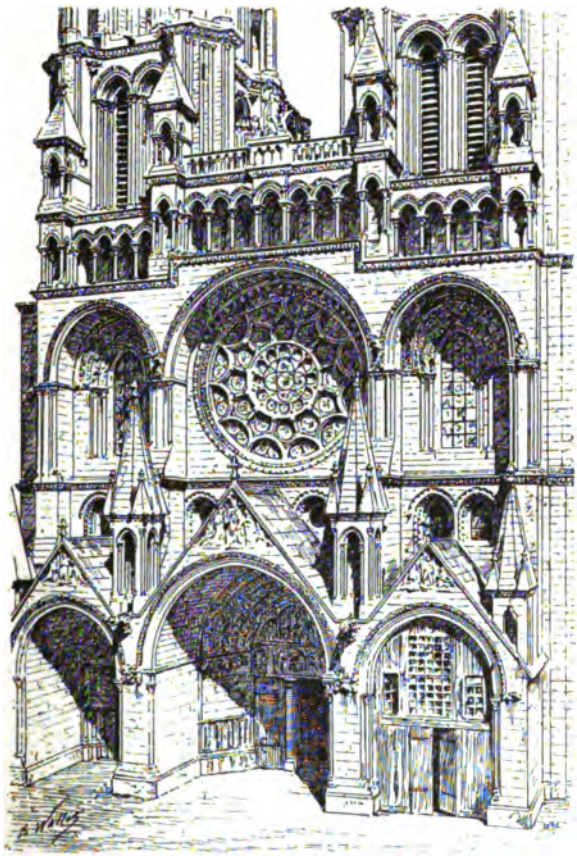
siderable numbers were conceived and continuously executed.[1]



33. CATHEDRAL OF LAON. INTERIOR OF THE NAVE

[1] It is possible, if not easy, to trace the architectural development of the Middle Ages in a good many cathedrals and churches of the twelfth and thirteenth centuries. We have, however, confined ourselves, for the purposes of our present synthesis, to the churches and cathedrals of

The great abbey churches founded towards the



34. CATHEDRAL OF LAON. MAIN FAÇADE

the royal domain, and more especially of the Ile-de-France, not only because they served as models for the architects of their day, but because they illustrate in a remarkable degree the various transitions we desire to study.

close of the twelfth century in the royal domain, but continued and finished in the early years of the thirteenth, still preserved a more ancient tradition.

Laon, which is derived from Noyon and from the south transept of Soissons, consists of a nave with transepts, and of two-storied side aisles vaulted upon intersecting arches, above which, as at Soissons, rise flying buttresses, which meet the thrust of the main vault.

This arrangement of the side aisles proves the continuity of the Norman formulæ, just as the method of construction adopted in the main vault demonstrates the persistent influence of the dome.[1]

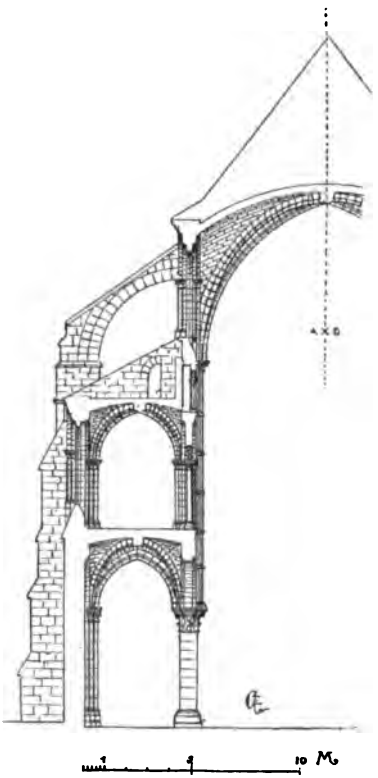
The admirably constructed main vault is square on plan, each square containing two transverse compartments, after the Angevin method as derived from the Aquitainian dome. Here we find indications that, if the builders of the Church of Laon had fully assimilated this method, their minds were nevertheless not altogether at rest as to the functions of the flying buttress. This was, of course, essential to the piers which received the united thrust of both transverse and diagonal arches. But it was far from logical to reinforce the intermediate piers supporting nothing but the auxiliary transverse arches by abutments identical with those of the main piers.

The illogicality so striking at Laon is absent from Noyon. There, on the contrary, the architects —of the original construction—had emphasised the functions of the main piers by buttresses of greater projection and solidity than those accorded to the secondary piers.

[1] See chap. i., "The Influence of the Cupola on Gothic Architecture."

35. CATHEDRAL OF LAON. THE EAST END

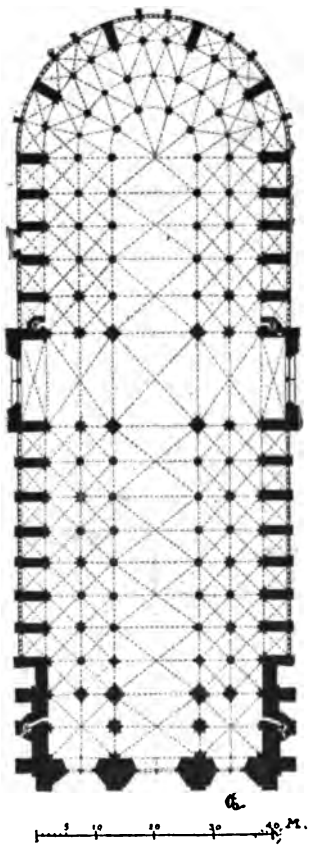
Notre Dame de Paris was begun towards the close of the twelfth century, and finished, save for



36. CATHEDRAL OF LAON. SECTION OF THE NAVE

the chapels, in the first half of the thirteenth. As at Laon, the Norman tradition is observed in the arrangement of the upper galleries of the side aisles, while the influence of the dome is again to be traced

in the sex-partite groining. The same illogical system of abutments obtains as at Laon.

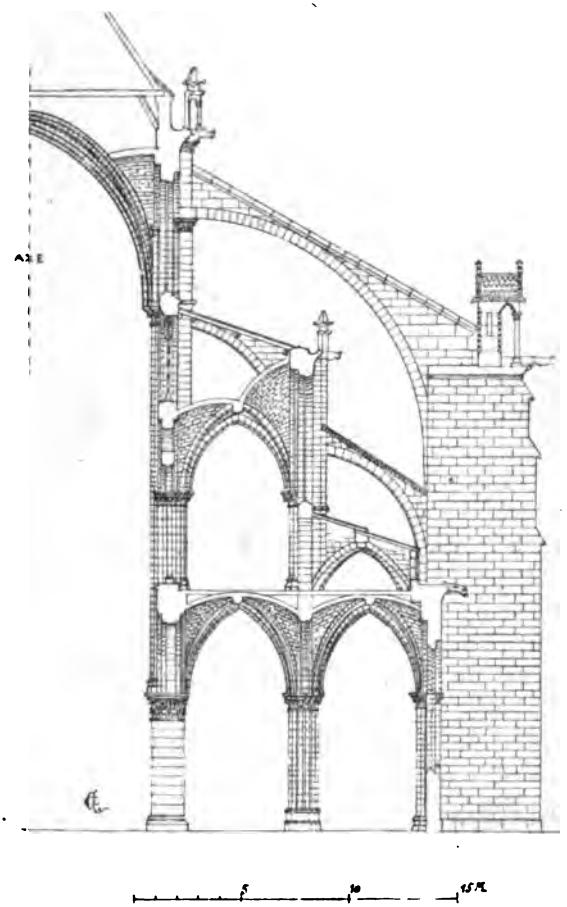


37. NOTRE DAME DE PARIS. PLAN

This vast building, consisting of a nave and double side aisles of equal height sweeping round the semicircular choir, seems to be one of the first five-aisled cathedrals; its grandiose arrangement, the boldness of its combinations, and the perfection of its detail mark the considerable progress made by the architects of the Ile-de-France.

The method of construction here adopted has a peculiar significance. The upper internal galleries, vaulted on diagonal arches, and raised considerably above the level of the second side aisle, the boldness of the flying buttress, which at one span embraces the two side aisles and forms the abutments of the main vault—alike prove that the architects of Notre Dame de Paris had adopted the newly discovered systems even to excess, and were applying them with unparalleled skill and ingenuity.

The Norman tradition which had obtained in the



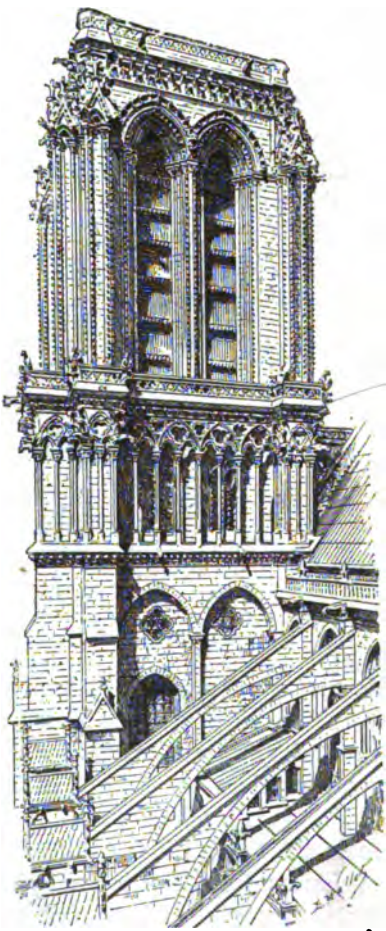
38. NOTRE DAME DE PARIS. SECTION OF THE NAVE

Ile-de-France passed away in the first years of the

thirteenth century. At Châlons-sur-Marne the nave is flanked by two-storied side aisles. But the upper gallery, vaulted and greatly reduced in size, shows that the conventional arrangement was fast dying out.

The influence of the dome was longer lived, as is shown in the construction of vaults at this period. We may still trace it at Langres in the domed form of the vaults, which, in spite of their rectangular plan, seem to be a reduced copy of the Angevin naves.

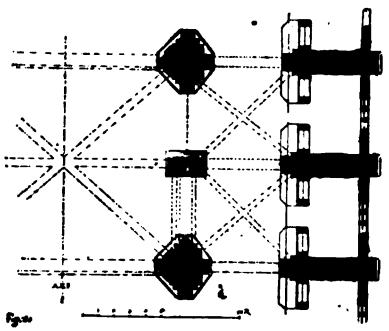
The naves of Sens and of Bourges are also vaulted in square compartments. The thrust of the vaults is carried by the diagonal arches to each alternate pier, the intermediate one receiving only the auxiliary transverse arch already



39. NOTRE DAME DE PARIS. FLYING BUTTRESSES AND SOUTH TOWER

fully described. Yet here again the exterior flying buttresses are all of equal solidity in spite of the varying strain. This arrangement, prudent if illogical, shows once more with what distrust architects had adopted that system of exterior abutment, the characteristic of which is a detached arch exposed to all the vicissitudes of weather, and yet responsible for the stability of the whole edifice.

The Cathedral of Sens marks a new phase of

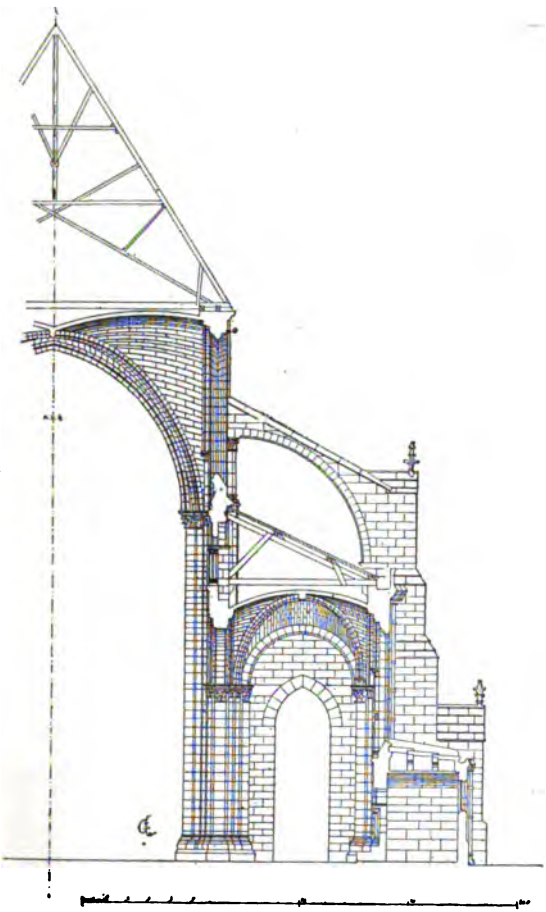


40. SENS CATHEDRAL. PLAN OF A BAY. VAULT IN SQUARE COMPARTMENTS OF TWO BAYS

development by its suppression of the upper gallery over the side aisles. These are now vaulted and covered by a lean-to roof; a flying buttress of single span receives the thrust of the main vault. The building is perfectly solid; its construction shows research, though it is as illogical as that of Laon or of Paris; for the exterior flying buttresses are all of equal strength, and so fail to proclaim their true functions, the interior thrusts varying considerably.

The arrangement at Bourges, which appears to have been mainly built, if not actually finished, in

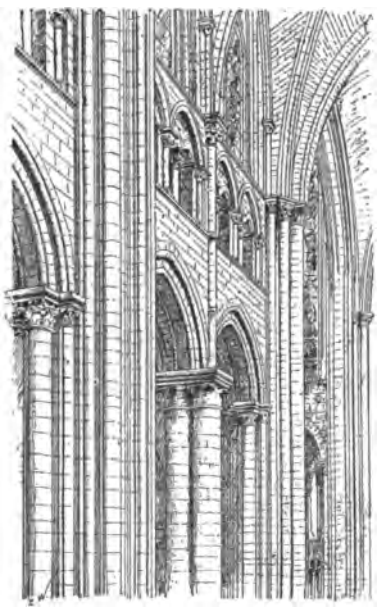
the first half of the thirteenth century, differs from



41. SENS CATHEDRAL. SECTION OF A BAY OF THE NAVE

that of Sens. The structure is one of five aisles,

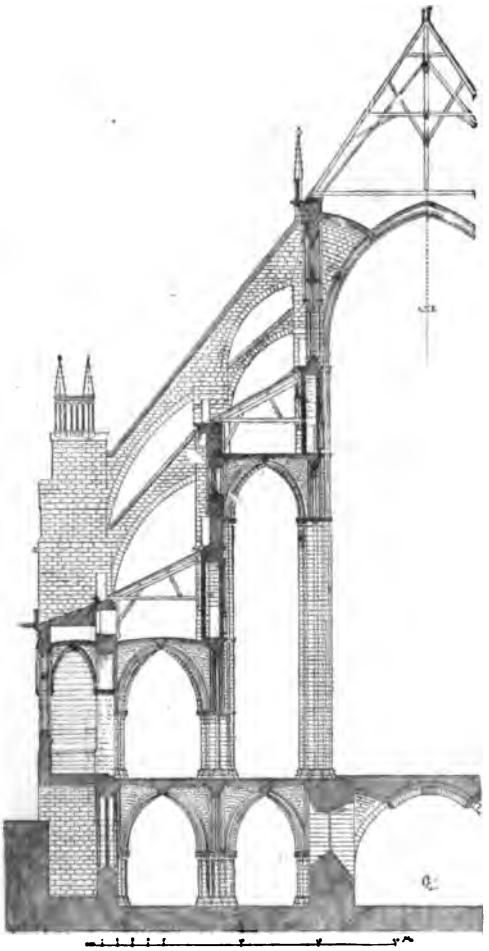
and in plan recalls Notre Dame de Paris, but the details are very dissimilar. The inner side aisles no longer support a gallery, nor are they of equal height with the outer aisles; they are raised so as to afford space for lighting (see Fig. 43). The



42. SENS CATHEDRAL. INTERIOR VIEW OF LATERAL BAYS

main vault is sex-partite planned on squares; but the same illogicality exists here which we have already pointed out, and in connection with which we will risk appearing somewhat insistent, in the hope of directing special attention to it. It is more glaring here than elsewhere, the flying buttresses

themselves being of exaggerated dimensions and of double span, embracing the two side aisles.



43. BOURGES CATHEDRAL. SECTION OF THE NAVE

Both at Bourges and Sens the space between the summit of the archivolts and the bases of the upper windows, known as the frieze, or, in modern parlance, the triforium, becomes a purely decorative feature. It consists of a narrow arcaded corridor, occupying in the interior of the building that portion of the wall space which in the exterior has been appropriated by the lean-to roof of the side aisles. At Sens there is merely a single gallery; at Bourges it becomes double, through the stepped arrangement of the side aisles (see Fig. 43), a variation in which we may trace an ingenious blending of the systems of Anjou and Poitiers with those of the Ile-de-France.

CHAPTER VII

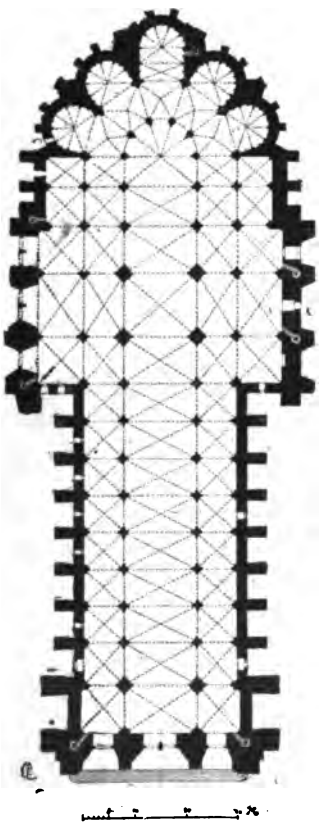
THE CATHEDRALS OF THE THIRTEENTH CENTURY

THE Cathedral of Rheims, which was begun soon after the destruction of the original building by the fire of 1211, is a supreme expression of the fusion of the three systems—those of Aquitaine, of Anjou, and of the Ile-de-France. It may be taken as the most perfect manifestation of persistent efforts to establish a method of construction based on equilibrium—the equilibrium, that is to say, of a building vaulted on intersecting arches, the thrusts of which are received by exterior flying buttresses.

The temerity, and even the dangers of such a system, are sufficiently demonstrated in the wonderful works of the thirteenth-century architects themselves. For, notwithstanding the skill and beauty of their many admirable combinations, they were unable to reduce their methods to scientific formulæ. The statical power of their structures remained an uncertain quantity, determined by the durability of the material and its exposure or non-exposure to the weather, the interior skeleton being formed of the same material as the exterior.

The perils inherent in such a system are more

apparent at Rheims than elsewhere, because of the colossal proportions of the building. The arrangement of the flying buttresses, however, is more logical than at Laon, Paris, Sens, and Bourges, by reason of the quadripartite arrangement of the main vault. The thrusts being equally distributed among the supporting piers, each flying buttress performs an identical office; their equal strength and solidity is therefore perfectly appropriate and logical. But though theoretically correct in its disposition of flying buttresses of equal strength to meet thrusts of equal strength, the method is vitiated by its inherent weakness as a system of abutment. The fragility of the flying buttress exposed it to two grave dangers, active and passive; active, taking into account the constant strain upon it as an abutment; passive, in regard to the gradual reduction of its solidity by exposure to weather. In support of this statement,



44. RHEIMS CATHEDRAL. PLAN

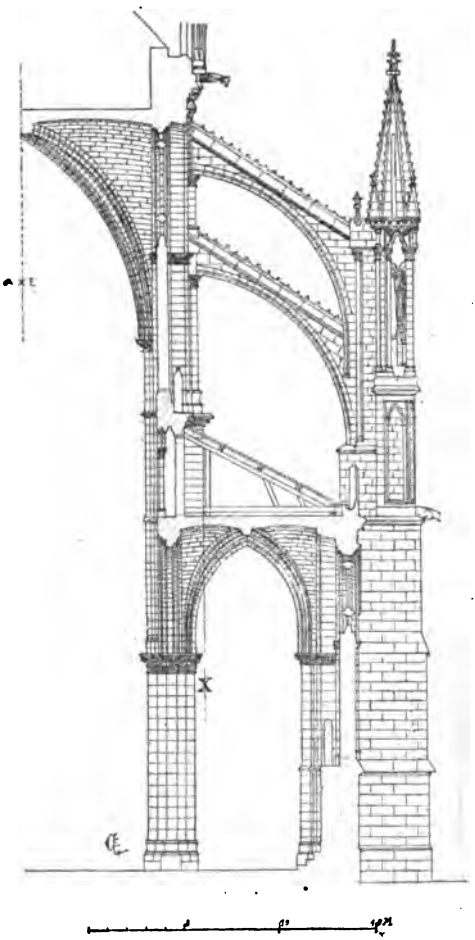
it is only necessary to refer to the restorations which it has been found necessary to make within the last few years, to preserve the nave. The flying buttresses have been strengthened from below, a proceeding without which the collapse of the huge building would have been inevitable.

But we shall find much to call for unqualified admiration at Rheims in the grandiose conception of the work and in its powerful execution, in the magnificent arrangement of its eastern façade, and in the perfect harmony of the ornamentation, where sculpture, capitals, friezes, crockets, and floriations are so many types of mediæval decorative art at its best.

The Cathedral of Amiens, which dates from about 1220, and is one of the largest as well as one of the most admired of Gothic masterpieces, is directly founded upon that of Rheims. The plan is on the same lines, with this exception, that at Amiens the choir is of greater importance relatively to the nave, and that the piers and points of support are weaker and much more lofty.

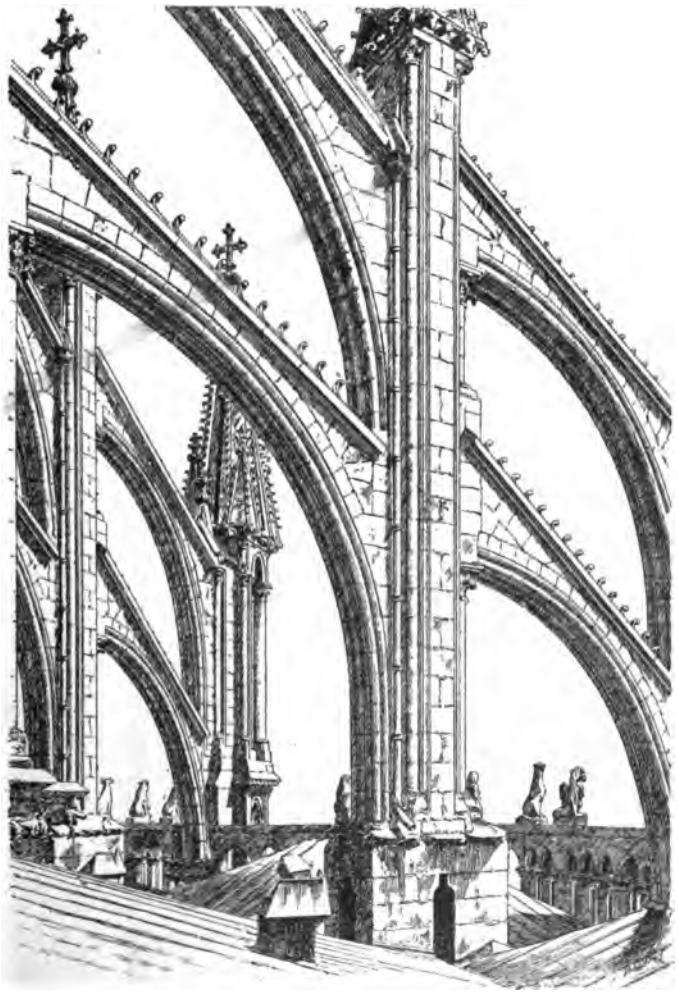
The Rémois architects, while exercised by the problems of equilibrium which their system involved, sought to minimise its dangers, which they recognised no less fully than their predecessors, by prudently avoiding all false bearings. It will be easily seen by a comparison of the two sections (Figs. 45 and 48) that the builders of Amiens were troubled by no such misgivings, or that they were at least more venturesome if not more accomplished. They did not hesitate to base the columns which received the crowns of the flying buttresses on a corbel arrangement which had no solid bearing, as may be seen by

following the direction of the dotted line X in Fig.



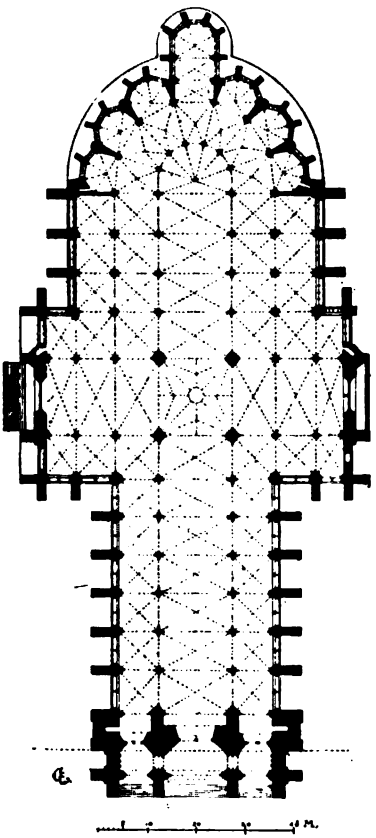
45. RHEIMS CATHEDRAL. SECTION OF THE NAVE

48. The boldness, or rather the imprudence of such



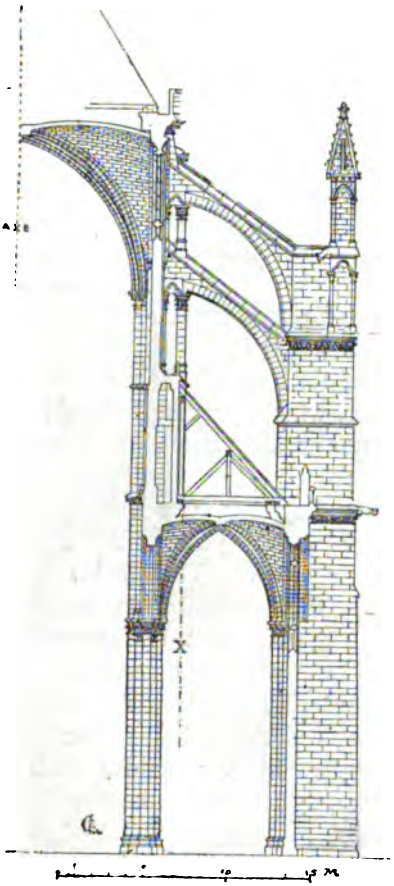
46. RHEIMS CATHEDRAL. FLYING BUTTRESSES OF THE CHOIR

an arrangement is patent, for the failure of any one of the courses, or the decay of any part of the pier into which the corbels are keyed, would necessarily involve a rupture in the flying buttresses, on which the stability of the main vault depends. The disintegration of the whole building and its total ruin could be the only result. The perils of such combinations, or rather such *tours de force* of equilibrium, are exemplified at Beauvais. The architects who built the choir, about the year 1225, basing it on that of Amiens, determined to raise a monument which should surpass, both in plan and elevation, all the structures of their epoch. They increased the breadth of the choir and of its bays, raising, in the latter, intermediate piers on the crowns of the lower archivolts, thus dividing the upper



47. AMIENS CATHEDRAL. PLAN

bays, and at the same time strengthening the vault by



48. AMIENS CATHEDRAL. SECTION THROUGH THE NAVE

auxiliary transverse arches. They exaggerated the height of the archivolts and of the large windows,

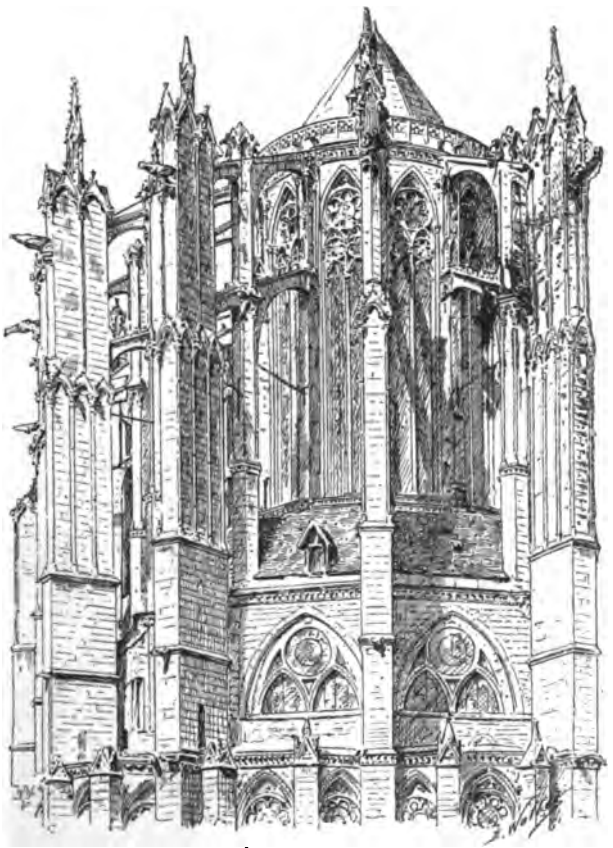
and diminished their thickness, in order to give greater elegance and lightness, and the main vault rose to a height of more than 160 feet above the ground level. This tremendous elevation, the exaggeration of which in proportion to the width of the nave is striking, necessitated a complicated system of flying buttresses surpassing in boldness all that had gone before. The section in Fig. 51 will give some idea of what has been justly described as an architectural folly. It is astonishing that the structure should have stood as it has done, taking into account the false bearings of the intermediate piers, here again shown by the dotted line X (Fig. 51).

These rest for half of their thickness on off-sets from the piers, which, proving unequal to the strain, have been temporarily stayed, and must eventually be consolidated.

The choir, however, was finished about 1270, and stood for several years. But dislocations then declared themselves. The forces so elaborately balanced lost their equilibrium, and on the 29th November 1284 the vault fell, dragging down with it the flying buttresses, and carrying havoc through the rest of the building. In the reconstruction which followed it was thought imperative to double the points of support in the arcades both of the main and side aisles, and to reinforce the flying buttresses by iron chains.

During the thirteenth century a number of cathedrals were raised all over Europe on the model of the great buildings of Northern France, and more especially of Amiens, which seems to have roused a great enthusiasm; these were, however, of far

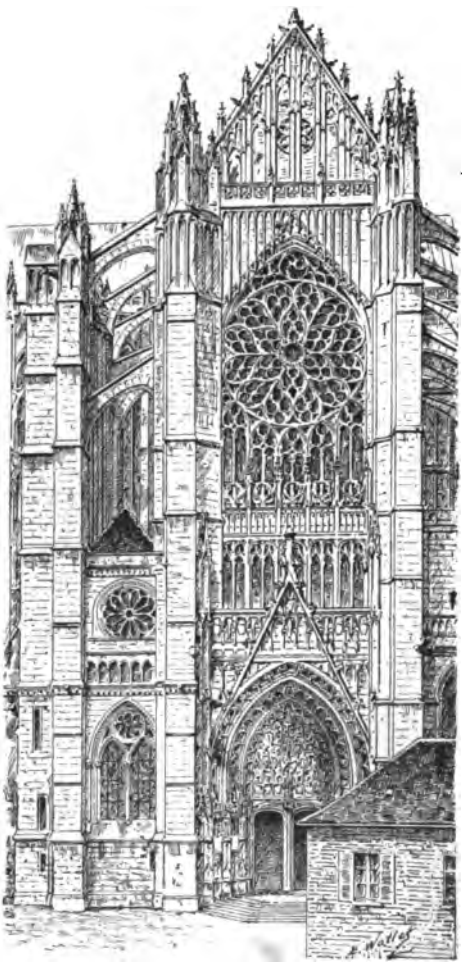
more modest dimensions. They had neither the exaggerated height nor the structural audacities of



49. BEAUVAIS CATHEDRAL. APSE

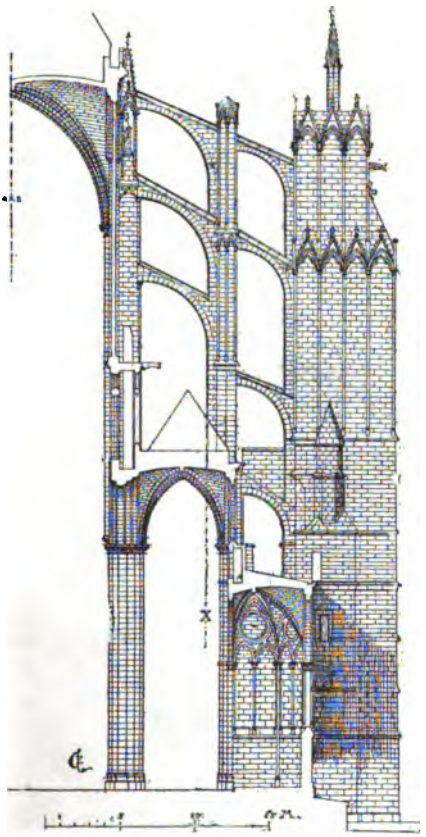
their exemplars. Few of these churches and cathedrals, the reconstruction of which on the new

system generally began with the choir, which was



50. BEAUVAIS CATHEDRAL. NORTH FRONT

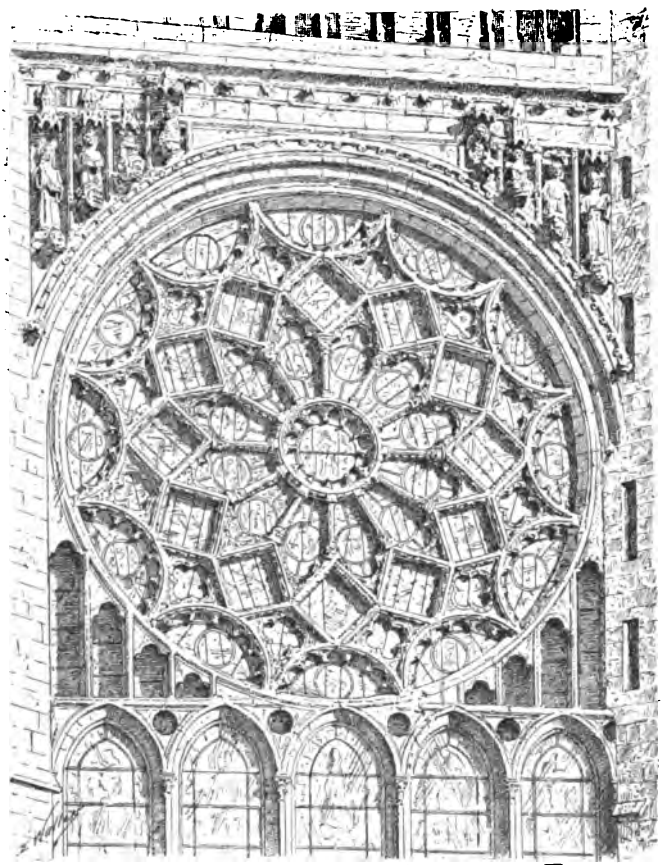
added to the primitive nave, were completed by those who initiated their erection. The most highly



51. BEAUVAIS CATHEDRAL. TRANSVERSE SECTION

favoured in this respect were finished in the course of the fourteenth century ; but in the greater number

of cases the work dragged slowly on, and reached



52. CHARTRES CATHEDRAL. ROSE WINDOW OF NORTH TRANSEPT

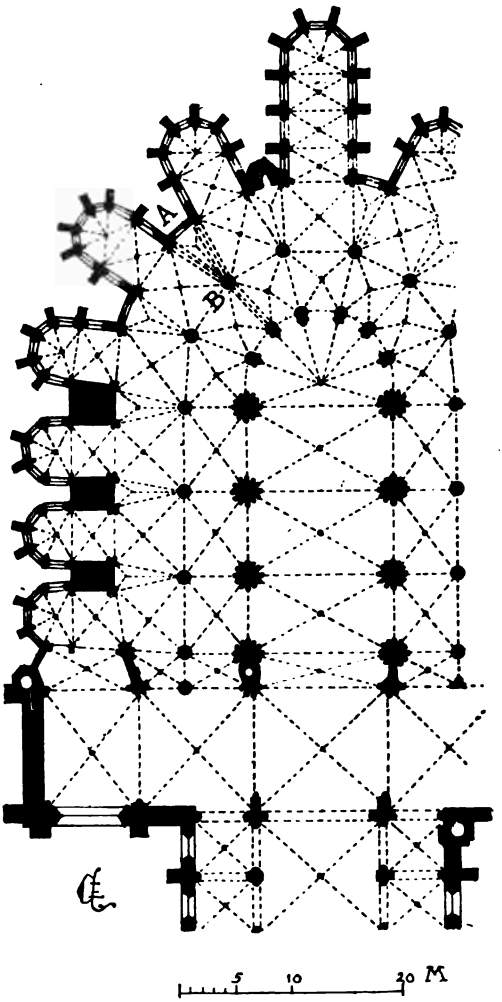
its end some two centuries after its inauguration. Reconstructive undertakings were constantly impeded

by wars or social convulsions, which either hampered or entirely cut off the resources of bishops and architects, their promoters. Such interruptions were of great service to modern archæological study, offering as they do distinct evidence of the various transformations which were successively accomplished from the so-called Romanesque period to the Gothic.

The majority of these great buildings, which show traces of the vicissitudes through which they passed, bear a strong likeness to each other, and vary only in detail, according to the skill of their constructors.

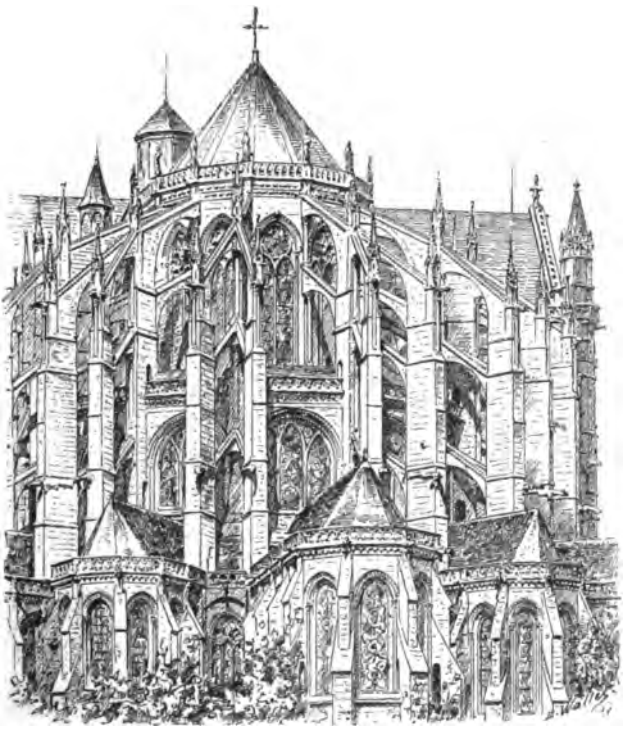
The peculiar interest of Chartres centres in its remarkable statuary; it has, however, other features which command attention, such as the rose window of the north transept and the design of the flying buttresses. These consist of three arches, one above the other, the two lower ones being connected by colonnettes, radiating from a centre, so that the lower arch is related to the upper, as the nave of a wheel is to the felloes, the colonnettes forming the spokes.

At Mans the arrangement of the choir is so far more remarkable in that it is extremely unusual, or indeed, in its way unique. The flying buttresses are planned in the form of a Y (see A on the plan Fig. 53), thus affording space for windows in the exterior wall, to light the vast circular ambulatory, which at Mans is of unusual importance, and surrounds the choir with a double aisle. The flying buttresses which rise above the *arcs-doubleaux*, bi-furcated (B on the plan), are over-attenuated in section; their exaggerated height and proportionate slenderness threaten to make them spring, so that it has been found necessary to bind them together by ties and



53. MANS CATHEDRAL. PLAN

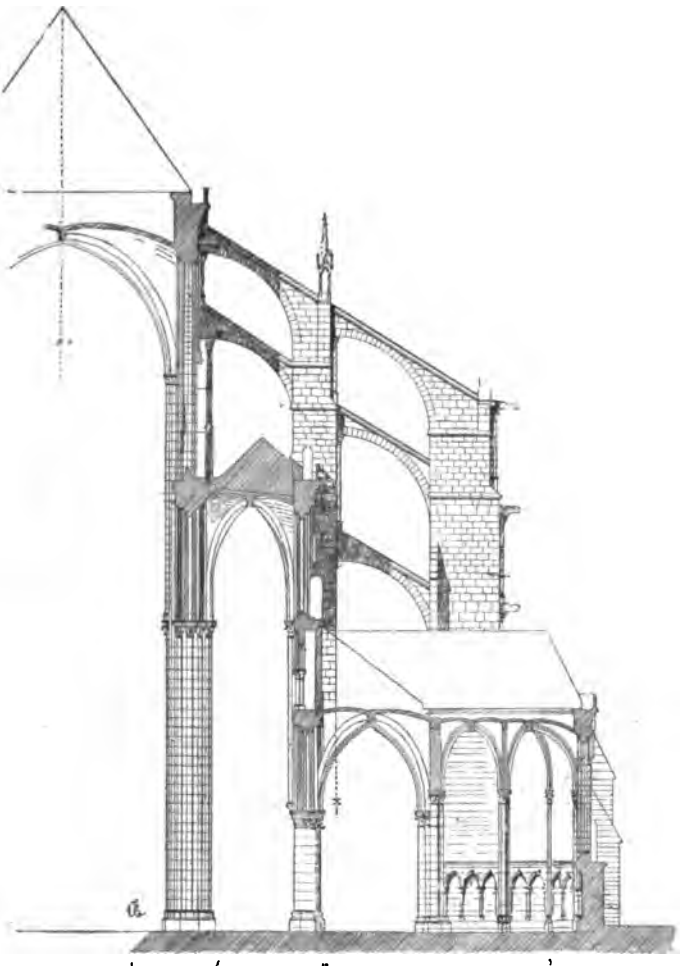
iron chains. Such expedients are a sufficient criticism of the ingenious but precarious system adopted by the architects of Mans.



54. MANS CATHEDRAL. FLYING BUTTRESSES OF THE APSE

The influence of the Ile-de-France in Normandy is manifest in the arrangement of choirs and apsidal chapels in Norman cathedrals of the thirteenth century. The Cathedral of Coutances, a monument

of the eleventh century, was rebuilt in the early



55. MANS CATHEDRAL. SECTION OF THE CHOIR

years of the thirteenth century under the impulse given by Northern France to the architecture of the period. It is in the choir that we clearly trace this influence, in the double columns of the apse, and the ingenious disposition of its collateral vaults. But the façade is purely Norman, not merely in general design, but in the details of the composition, facsimiles of which may be found in England.

The Cathedral of Dol in Brittany, one of the great churches of the thirteenth century, seems to have escaped the influences of the Northern innovation. Its general plan, its square apse lighted by large windows, the details of its architecture and ornamentation, all proclaim its affinity to the great churches which rose contemporaneously with it on either side of the Channel, in Normandy, and in England. It is very probable that it was built by the same architects or their immediate disciples, working on the more ancient

56. COUTANCES CATHEDRAL. NORTH TOWER

methods of the Norman schools founded by Lanfranc at Canterbury towards the close of the eleventh century, on the model of those he had established in France at the famous Abbaye du Bec.

CHAPTER VIII

CATHEDRALS AND CHURCHES OF THE THIRTEENTH AND FOURTEENTH CENTURIES

THE Cathedrals of Rheims, Amiens, and Beauvais excited extraordinary enthusiasm in their time, not only in the provinces of France, but among neighbouring nations, notably in England, Belgium, Germany, Sweden, Spain, and Italy.

This enthusiasm was less fervid in the provinces farthest from the royal domain; but even in these outlying districts several remarkable buildings rose in the first half of the thirteenth century, constructed on the new lines.

In 1233 the Cathedral of Bazas was begun, and, unlike the majority of such undertakings, was carried through and finished in a comparatively short time.

The Cathedral of Bayonne, a contemporary building, shared the fate of Meaux, Troyes, and Auxerre. It was completed, with one tower only, in the sixteenth century. In 1248 the foundations of Clermont Cathedral were laid. The plan provided for six or seven towers, but the choir was the only portion finished in the thirteenth century. The transept and four towers, together with a portion of

the nave, were completed in the following century, and the work was then abandoned until the reign of Napoleon III., who caused it to be again taken up. The Cathedral of Limoges was begun in 1273, under the direct inspiration of Notre Dame at Amiens.

57. RODEZ CATHEDRAL. WEST FRONT

Down to our own times it has had to content itself with a choir, a transept, and the suggestions of a nave, the last of which has lately been completed. At Rodez a greater perseverance was shown, and the work went steadily on from 1277 until the Renascence, at which period, however, the two western towers were left unfinished, notwithstanding

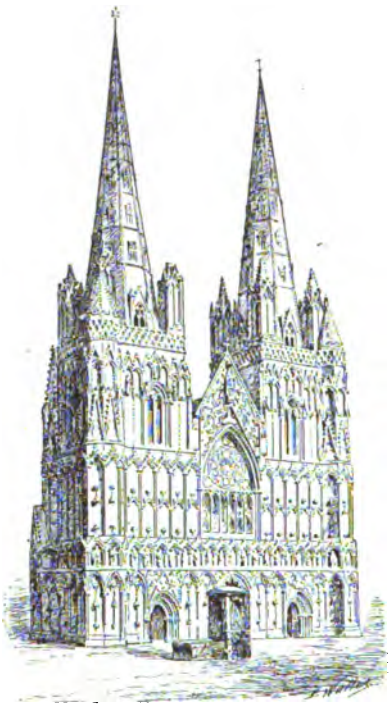
a contemporary description of their magnificence,

58. BORDEAUX CATHEDRAL. CHOIR AND NORTH FRONT

which, in a truly Gascon vein, compares them to the

Egyptian pyramids, among other world-renowned marvels.

"In 1272 Toulouse and Narbonne entered the lists against Amiens, imitating its plan, and propos-



59. LICHFIELD CATHEDRAL. WEST FRONT

ing to at least equal it in dimensions. Neither of these undertakings proved happy. Archbishop Maurice of Narbonne died the same year the works were begun; his successors took but a lukewarm interest in their progress. In 1320 the sea re-

treated, leaving the port on which the wealth of the inhabitants mainly depended high and dry. Fortunately the choir with its noble vault 130 feet high was already completed, but the transept walls were left to fall into ruins. At Toulouse Bishop Bertrand de l'Isle-Jourdain lived just long enough to carry the work above the triforium of the choir; it was then abandoned till the fifteenth century. His successors squandered the revenues of their vast diocese so shamelessly in pleasures and display that Popes Boniface VIII. and John XXII., scandalised at their disorders, dismembered their territory and subdivided it into four bishoprics, granting to the Bishop of Toulouse the title of archbishop by way of compensation. But this compensation was of small avail to future zealous prelates for the carrying out of Bertrand's projects, and the choir of Toulouse was never finished. It falls short of its predestined height of 130 feet by 90, and the transept was not even begun.

"The Cathedrals of Lyons, of St. Maurice at Vienne, and of St. Etienne at Toul have affinities more or less direct with the great architectural movement. At Bordeaux the building of a great cathedral was contemplated at the time of the English occupation; but the choir would never have been finished but for the liberality of King Edward I. and of Pope Clement V., who had formerly been archbishop of the town."[1]

The great cathedrals constructed in England in the thirteenth century bear witness to the expansion

[1] Anthyme St. Paul, *Histoire Monumentale de la France*; Paris Hachette and Co., 1884.

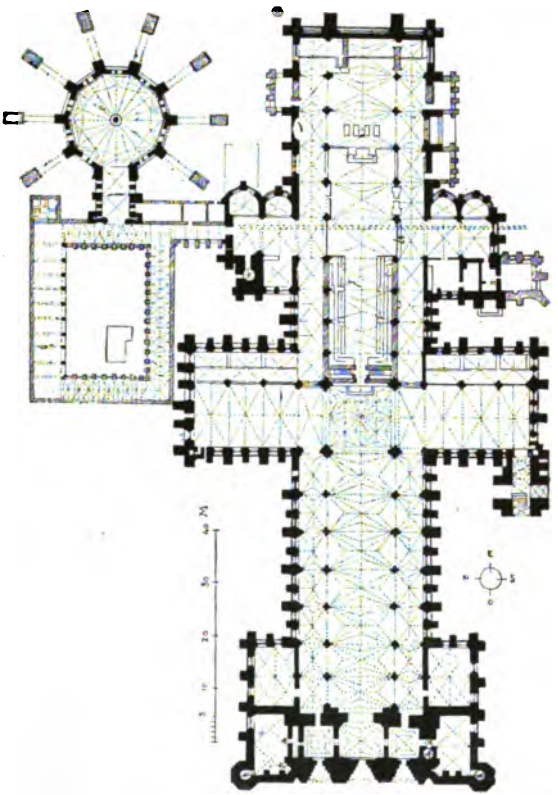
of French art on the lines already laid down in the preceding century by the teaching and achievements of the Norman monkish architects who had followed William the Conqueror to Great Britain.[1]

English builders assimilated the constructive principles of the architects of Anjou and of the Ile-de-France. In the numerous cathedrals they raised from the thirteenth to the close of the fifteenth century it is easy to trace the original characteristics of French art throughout all the transformations or adaptations by which its methods were modified in accordance with British usages and ideas.

This influence is very apparent in the Cathedrals of York, Ely, Wells, Salisbury, and Canterbury, the last of which was constructed from the plans of an architect or master-mason, known as William of Sens; in that of Lichfield, where the spires of the façade recall those of Coutances in Normandy, and above all, at Lincoln, one of the most beautiful of English cathedrals. Here we have perhaps the most strongly-marked instance of the steady and continuous filiation between the buildings of France and England during the so-called Gothic period. It is quite possible that they were the work of the

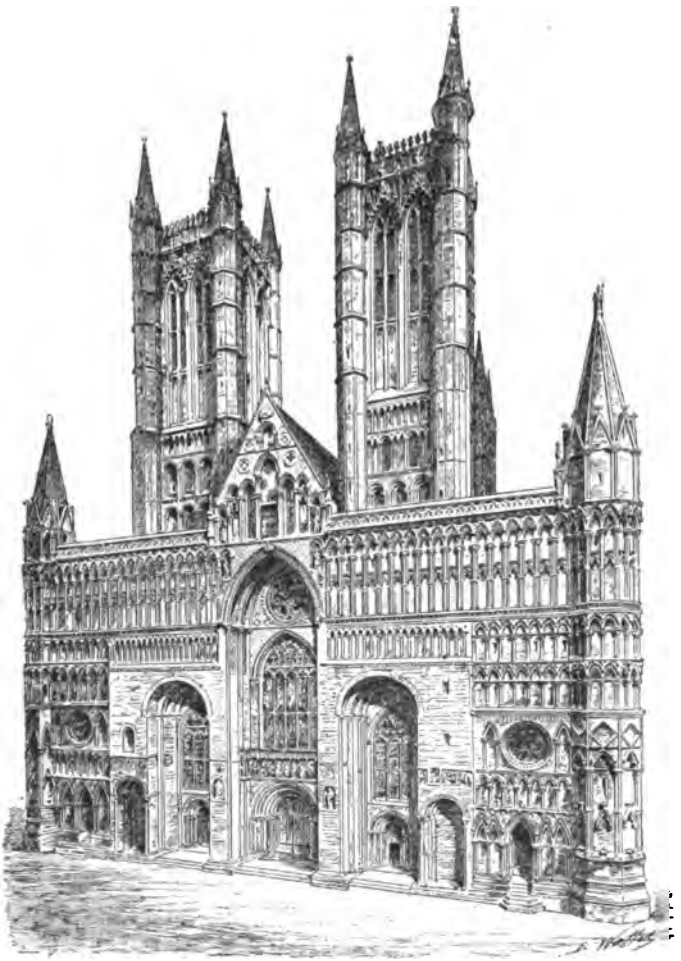
[1] This is a very summary way of dismissing the vexed question of French influence upon English architecture. The undeniable fact that wherever a French architect can be identified as the author of an English building—William of Sens at Canterbury, for instance—the work he did differs entirely in character from contemporary English work is enough to refute much of the claim made for France. The principles of Gothic architecture were the common property of the two countries, and by each were developed according to their lights. —Ed.

same architects, as they certainly were carried out by pupils or disciples of the same master-builders.[1]



60. LINCOLN CATHEDRAL. PLAN

[1] It is difficult to believe that **Mons.** Corroyer is in earnest in comparing the spires of Lichfield to those of Coutances, or the central tower of **Lincoln** to that of the same French cathedral. Mons. Corroyer appears to be unacquainted with the line of filiation between English spires and towers, and so looks, as a matter of course, for a French mother to such as strike his fancy.—ED.



61. LINCOLN CATHEDRAL. WEST FRONT

Lincoln Cathedral, founded in the eleventh century, and finished in 1092, shared the fate of so many other timber-roofed buildings of the period. The greater part of it was destroyed by fire in 1124. It was rebuilt and enlarged by St. Hugh in accordance with the new ideas he had brought with him from France, a very natural consequence of his supervision, when we take into account that as mandatory of Pope Gregory VII. he had been Bishop of Grenoble. The church was again partly destroyed by an earthquake in 1185. It was then rebuilt, enlarged, and completed by Bishop Grossetête, an Englishman by birth, who had, however, been educated and brought up in France in the early part of the thirteenth century, and had carried over with him to his native land the essence of the grand and noble inspirations which marked that marvellous era.

The lantern-tower at the intersection of the western transept, which had fallen in 1235, was either rebuilt or finished by Bishop Grossetête about 1240. In its general outline and in detail it recalls the great lantern-tower of Coutances in Normandy, which seems also to have served as model for that of St. Ouen at Rouen in the fourteenth century.

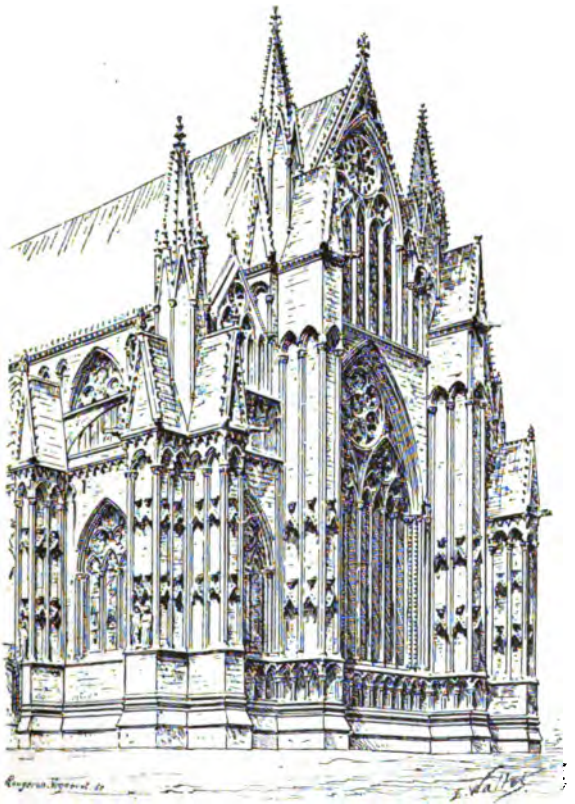
The vast and magnificent Cathedral of Lincoln is an admirable subject for comparative study. Its architecture combines most strikingly the characteristics of the two nations. It blends in one harmonious whole the massive solidity of English structure overlaid with detail, formed by lines vertical, rigid, dry, and hard as iron, and the mingled

grace and strength of French architecture, which

62. LINCOLN CATHEDRAL. TRANSEPT

may fitly be compared with gold, in its union of

the supple and the durable, of solidity and power of resistance equal to those of the less precious



63. LINCOLN CATHEDRAL. APSE AND CHAPTER-HOUSE

metal, with an adaptability to artistic ends far greater.

In the façade and the west towers English characteristics predominate, but the choir and the apse

are French in composition, and most probably in execution, as is also the presbytery, in which both the arrangement and the details of the bays recall those of the lateral façades of Bourges.[1] All three are veritable masterpieces, worthy of the most brilliant period of French mediæval architecture.

In Belgium French influence manifested itself so early as the first half of the thirteenth century in the building of the remarkable Church of Ste. Gudule at Brussels. Up to this period the methods of the Rhenish schools had obtained in the Low Countries, and the setting aside of these methods in favour of the new system of France is significant of the high repute of the latter throughout Western Europe. Further evidence to this effect is to be found in the great churches of Ghent, Tongres, Louvain, and Bruges among others, which were

[1] Here Mons. Corroyer directly traverses the opinion of Viollet-le-duc, who could see no ground whatever for ascribing a French origin to the choir of Lincoln. Indeed, the conception of that choir, and nearly all its details, are not only unlike, they are opposed to those of French contemporary examples. Here are the words of the great French architect: "After the most careful examination I cannot find, in any part of the Cathedral of Lincoln, neither in the general design, nor in any part of the system of architecture adopted, nor in the details of ornament, any trace of the French school of the twelfth century (the lay school, from 1170 to 1220), so plainly characteristic of the Cathedrals of Paris, Noyon, Senlis, Chartres, Sens, and even Rouen. . . . The construction is English, the profiles of the mouldings are English, the ornaments are English, the execution of the work belongs to the English school of workmen of the beginning of the thirteenth century." —*Gentleman's Magazine* for May 1861—Letter to "Sylvanus Urban." The date of Lincoln choir is known. It belongs to the last years of the twelfth century, and so anticipates such French work as can show analogies with it, Le Mans, for instance, where the work in question dates from 1210-1220.—ED.

either built between 1235 and 1300, or at any rate begun during this period, to be completed in the fourteenth century and even later.

64. BRUSSELS CATHEDRAL (STE. GUDULE). WEST FRONT

Ste. Gudule at Brussels was begun about 1226; but only the choir and the transept were

finished by 1275. The nave was built in the fourteenth century, together with the towers of the west front, which, however, were not finally completed till the following century, or perhaps the sixteenth. Several chapels, the windows of which are filled with magnificent painted glass, date from the same period as these towers.

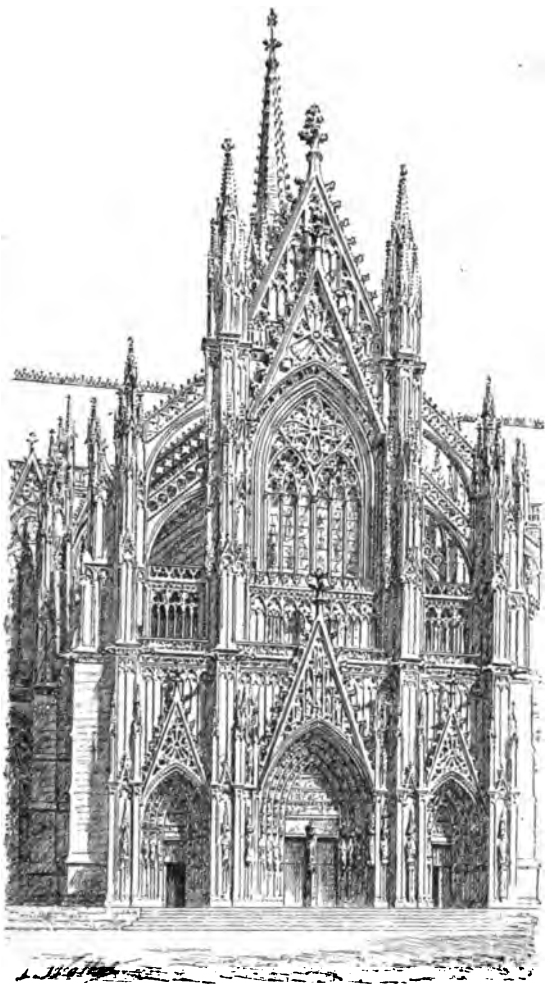
French influence is no less patent at Cologne, which is undoubtedly the daughter of Amiens. The opinion of a German writer is of special interest on this point.

"The famous Cathedral of Cologne, one of the masterpieces of the German School, is a direct emanation from French tradition. The choir is a replica of that of Amiens; it was dedicated in 1322, after which the work of nave and transepts was carried on continuously; the nave measures 43 feet in width, and 140 in height; the total length of the church is 503 feet. The two towers of the west front have been completed in our own times—from the original designs, it is said. The general effect, whether of interior or exterior, is certainly not equal to that of the finest French cathedrals, but the style is rich and pure, and touches perfection in the treatment of details."[1]

In Scandinavian countries French art, which had already manifested itself at Ripen in Jutland during the so-called Romanesque period, gives us a fresh instance of its expansive power in an important Swedish building which dates from the end of the thirteenth century. The Cathedral of Upsala has this peculiarity, that it was designed and even

[1] W. Lübke, *Essai d'Histoire de l'Art.*

begun by a French architect, one Estienne de Bonneuil,



65. COLOGNE CATHEDRAL. SOUTH FRONT

who, on 30th August 1287, received the royal authority to betake himself to Upsala to construct the cathedral.[1]

In Spain the chief monuments of thirteenth-century Gothic architecture which betray the influence of France are the great five-aisled Church of Toledo, the cathedral at Badajoz, and the front of St. Mark's at Seville. French influence again is manifest in the cathedrals of Léon, of Palencia, of Oviedo, of Pampeluna, of Valencia, and of Barcelona, founded at the end of the thirteenth century and continued in the fourteenth, as well as in the churches of Torquemado, Bilbao, Bellaguer, Monresa, and Guadalupe, all dating partly from the fourteenth century.

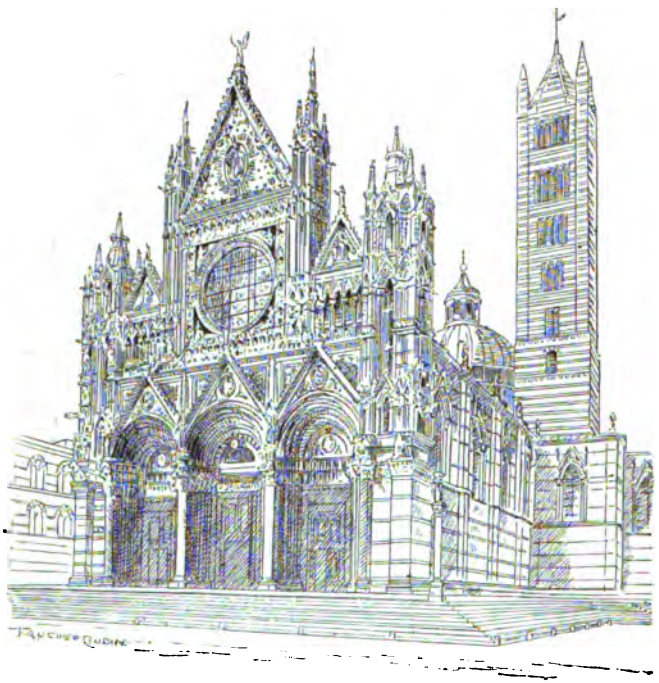
The Cathedral of Burgos, begun in the first half of the thirteenth century, shows a striking analogy with French buildings of about the same period in the plan and construction of its flying buttresses and windows as well as in the decorative sculpture of its portals. The lower stories of the west front seem to date from the fourteenth century, but the open-work spires which crown it were not finished until the fifteenth. In this curious building we find elements taken from France, mingled with decorative passages of pure Italian, and with others characteristically Spanish in their use of motives only to be explained by the vitality of the Saracenic traditions.

Innumerable churches were built in Italy during the so-called Gothic period, principally towards its

[1] Charles Lucas, *Les Architectes français à l'Étranger* (from the journal, *L'Architecture*).

66. BURGOS CATHEDRAL. WEST FRONT

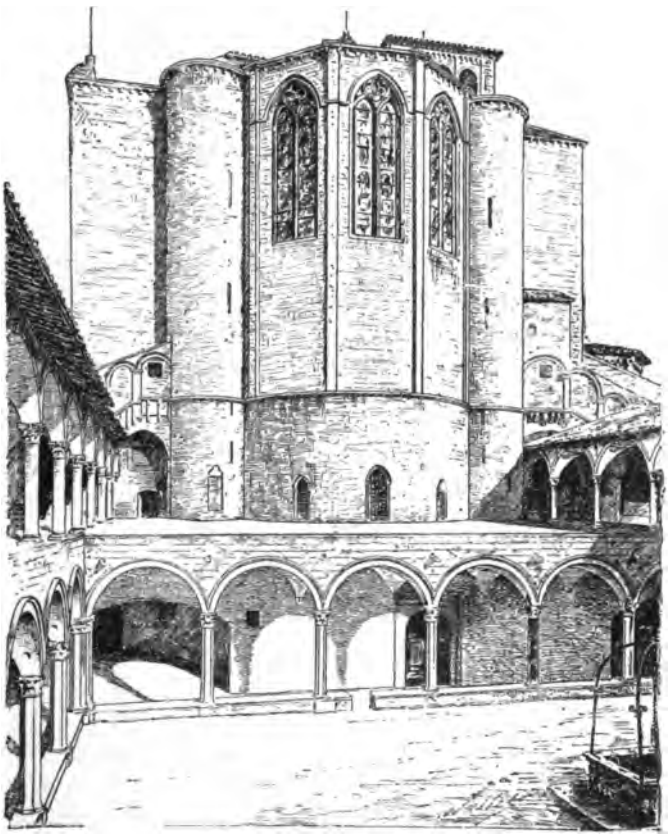
conclusion. Not to speak of the famous Cathedrals of Milan and Florence, nor of S. Anthony, nor of the Cathedral of Padua, the Cathedrals of Siena and Orvieto seem especially to lean away from antique



67. CATHEDRAL OR DUOMO OF SIENA. WEST FRONT

and Lombard traditions towards those of France, a characteristic especially notable in the decorative details of their west fronts, which recall in many ways the work of French architects during the thirteenth and fourteenth centuries.

It is the opinion of some archæologists that the true parent of the Cathedrals of Siena and Orvieto



68. CHURCH OF ST. FRANCIS AT ASSISI. APSE AND CLOISTERS

was the Church of St. Francis at Assisi, which is not far distant. Now St. Francis of Assisi is undeniably French in origin. This church, which

was founded in 1228 to receive the remains of St. Francis who died in 1226, was possibly completed as to the lower structure in the thirteenth century; but it is improbable, to say the least, that this completion should have been the work of a German, for at this period Gothic architecture was still in embryo in Germany, while in France it had reached its most glorious development. The upper church seems to be later in date by a century; we may clearly trace its affinities with French art in the system of construction, which has all the characteristics peculiar to that which prevailed in the south of France at the close of the thirteenth and the beginning of the fourteenth century. Of this system the Church of Albi is the most finished type.[1] Assisi, in its single aisle, in its buttresses, both as to their interior projections and their exterior half-turreted forms, shows a complete analogy with the French Albigeois church.

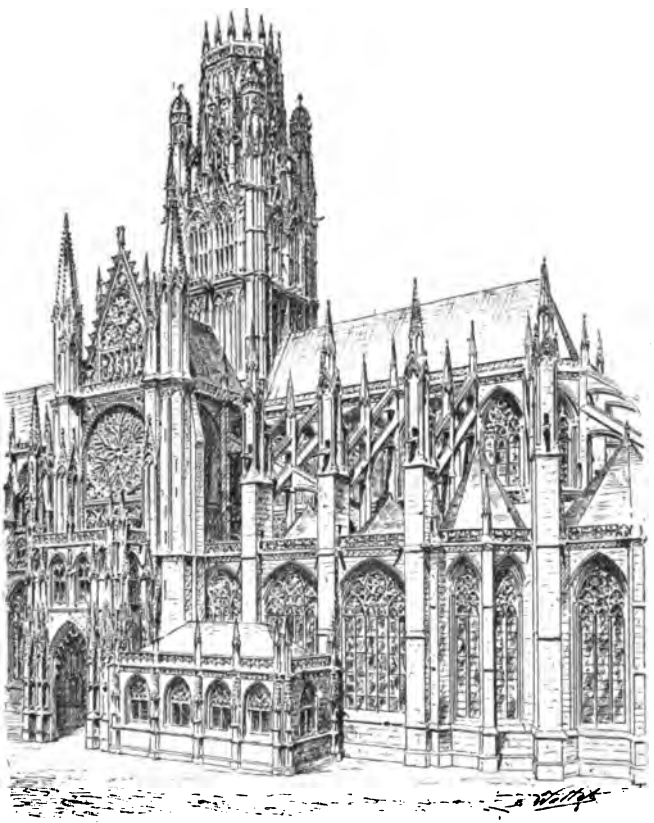
[1] See chap. ix. "Albi," etc.

CHAPTER IX

CHURCHES OF THE FOURTEENTH AND FIFTEENTH CENTURIES IN FRANCE AND IN THE EAST

"THE thirteenth century was so prolific in religious architecture as to leave little scope to those which followed. But even had the growth of great religious monuments been less rapid at this period, the wars which convulsed France in the fourteenth and fifteenth centuries would have paralysed such undertakings as the building of great cathedral churches. The religious buildings actually completed in the fourteenth century are rare; still rarer are those which date from the fifteenth. In those stormy days enterprise was confined to the completion of unfinished churches, and the modification, restoration, or enlargement of twelfth and thirteenth century buildings. It was not until the close of the fifteenth and opening of the sixteenth century, when France was beginning to recover its former power, that a fresh impulse was given to religious architecture; even then, however, the Gothic tradition persisted, though in a corrupt and bastard form. Many of the great cathedrals were finished, and a number of small churches, which had been destroyed

during the wars, or had fallen into decay through long neglect, consequent on the poverty of the



69. CHURCH OF ST. OUEN AT ROUEN. CENTRAL TOWER AND APSE, SOUTH FRONT

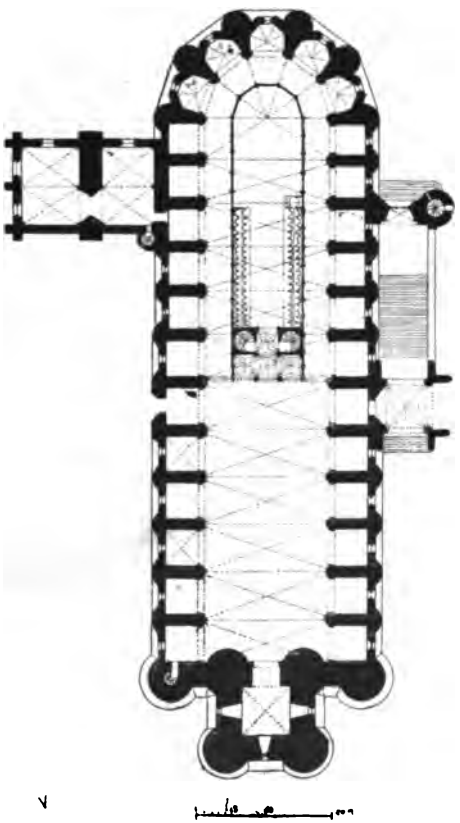
community, were either rebuilt or restored. The movement was, however, presently arrested by the

Reformation, when war, fire, and pillage again destroyed or mutilated most of the newly completed religious buildings. The havoc wrought by this last upheaval was in its nature irrevocable, for when order once more reigned at the close of the sixteenth century, the Renascence had swept away the last traces of the national art; and though superficially the system of construction which prevailed in French churches of the thirteenth century still obtained, the genius which had presided at their construction was extinct and its memory despised." [1]

The Church of St. Ouen at Rouen, except for the west front and its towers, which are modern, is a typical example of the rare religious buildings constructed in the north of France during the fourteenth century. The arrangement of these churches varies, inasmuch as, while in general they follow the methods of construction adopted by the Northern architects of the thirteenth century, their special characteristic is a refinement or rather an attenuation of the piers, less by actual reduction of their section than by a diminution of their apparent bulk. This was effected by multiplying the clustered shafts, the slenderness of which was still further exaggerated by the prodigality of the mouldings, and the over-hollowness of their profiles. These profiles and mouldings rise from the base to the summit, and in the fourteenth century mark the spring of the arches by rings of sculpture, crowned with rudimentary abaci. These latter details were the last traces of a tradition which was to finally

[1] Viollet-le-Duc, *Dictionnaire raisonné de l'Architecture française*, etc., vol. i.

disappear in the fifteenth century. Thenceforward the lines of the intersecting arches of the vault, as of



70. ALBI CATHEDRAL. PLAN

the longitudinal and transverse arches, run down without interruption to the base of the piers, where we find a complex faggot of mouldings crossing and

recrossing, and showing little beyond the technical dexterity of the carver.

The main preoccupation of the architects of this period seems to have been the reduction of solid surfaces so as to give full play to the soaring effect of their airy shafts and vaults. The walls disappear, save below the windows, which now occupy the entire space of each bay. The triangular divisions of the vault are concealed by a serried network of supplementary ribs, for the most part useless save as decorations. But it must in justice be remembered that to this exaggeration of the window spaces we owe the growth of the beautiful art of painting on glass. This art, the admirable fitness of which for decorative purposes can hardly be over-estimated, had already manifested itself in the twelfth and thirteenth centuries. In the interval from that period to the Renascence it produced its grandest masterpieces.[1]

It must be borne in mind that the great constructive and reconstructive movement which had manifested itself throughout Western Europe, and notably in the north of France, by great buildings, the distinguishing characteristics of which are vaulted roofs and flying buttresses, had made little progress in Southern France. The few exceptions of importance are—Bazas, Bayonne, Auch, Toulouse, and Narbonne. The Southern architects, as we have already stated, adhered to the ancient tradition, whether influenced by impulses of reaction, resistance, or defiance. Their conservatism is comprehensible enough in view of the strong Gallo-Roman

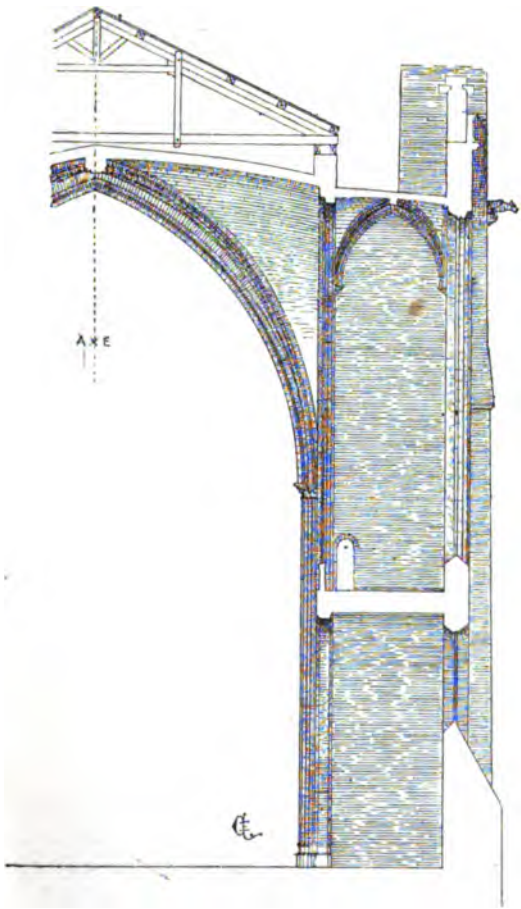
[1] See chap. xii. "Decorative Painting on Walls and Glass."

tendencies which governed architectural activity throughout the district. The builders of the thirteenth and fourteenth centuries did indeed accept the Angevin intersecting arch, an invention the admirable simplicity of which was its own recommendation. But this concession was without prejudice to their broad principles. In the general arrangement of their religious buildings they still adhered to Roman usage, and to such models as the Basilica of Constantine and the tepidarium of the Baths of Caracalla.[1]

Towards the close of the thirteenth, and throughout the fourteenth century, a large number of churches were built in the South, consisting of a single wide and lofty aisle, vaulted on intersecting arches, the thrusts of which were received by buttresses of great bulk and prominence in the interior of the building, but very slightly indicated on the exterior. The spaces between the massive interior buttresses, on either side of the aisle, were occupied by a series of chapels, supporting disconnected tribunes or a continuous corridor. The two great churches of the Cordeliers and of the Jacobins at Toulouse were built in the brick of the country in the second half of the thirteenth century. These have two aisles, according to the Dominican usage of the period, but the exterior arrangement is the same as in the one-aisled churches. The Churches of St. Bertrand at Comminges, and those of Lodive, Perpignan, Condom, Carcassonne, Gaillac, Montpezat, Moissac, etc., were built in the fourteenth and fifteenth centuries

[1] *L'Architecture Romane*, by Ed. Corroyer; Paris, Maison Quantin, chaps. iii. and vii.

on the single-aisled plan. That of Perpignan has



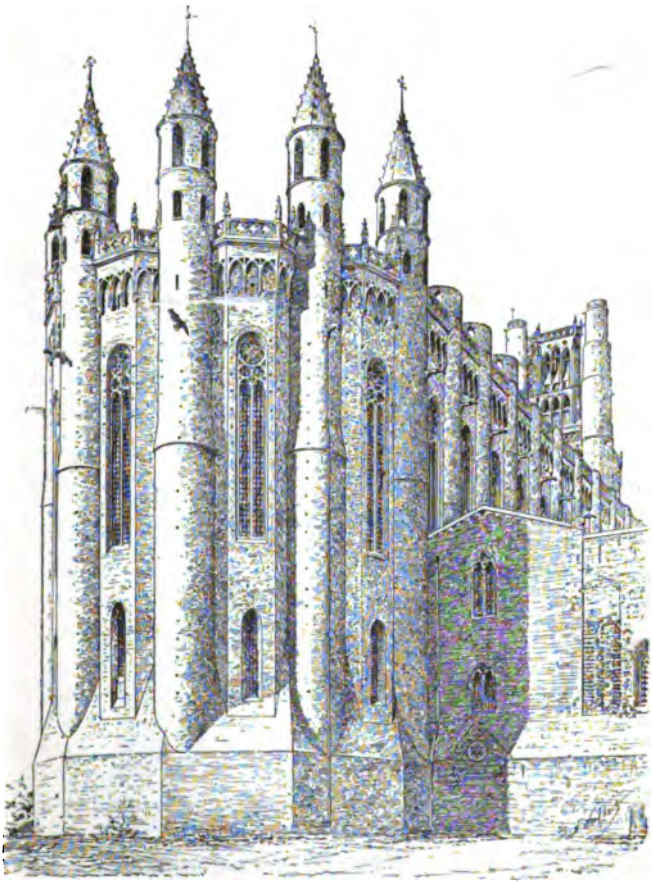
71. ALBI CATHEDRAL. SECTION OF THE NAVE

this peculiarity; its vaults, though supported on intersecting arches, are built in accordance with Roman methods, which further prevail both in the forms of the terra-cotta materials, and in the manner of their application. The reins of the vault, which measures some 53 feet across, are ornamented by terra-cotta jars embedded in an admirably prepared lime mortar of great durability. The actual roof lies without the support of any intervening structure of timber upon the extrados of the vault. This consists of voussoirs of Roman brick, retained by a layer of terra-cotta upon which the tiles, also of the antique Roman form, are laid. This arrangement protects the vault from any infiltration of water due to the rupture of the tiles, an absolutely necessary precaution, if the former was to retain its stability.

The Cathedral of Ste. Cécile at Albi is a monumental type of the single-aisled system. It is one of the largest and most important of Southern buildings constructed on the traditional principles of the ancient Romans. The vast single aisle, some 60 feet wide, is built entirely of brick, with the exception of the window tracery, the choir screen, and the south porch. Here we may study constructive principles no less simple than sagacious, combining all the necessary conditions of stability. The points of support and abutments of the vault on intersecting arches are all enclosed by the outer wall; they are thus protected from the accidents of climate, and their durability is almost indefinitely assured.

The foundations of the cathedral, which was dedicated to St. Cecilia, were laid in 1282, on the ruins of the ancient Church of Ste. Croix. The

main building was finished towards the close of the



72. ALBI CATHEDRAL. APSE

fourteenth century, and the whole as it now stands was completed in the last years of the fifteenth and

early part of the sixteenth century, by the addition of the baldacchino of the southern porch, or principal entrance, of the stone rood loft, and choir

73. ALBI CATHEDRAL. DONJON TOWER AND SOUTH FRONT

screen, the stalls of carved wood, and the fresco decorations which adorn the whole building. This varied workmanship renders Albi one of the most instructive of studies in connection with French decorative art, the successive developments being

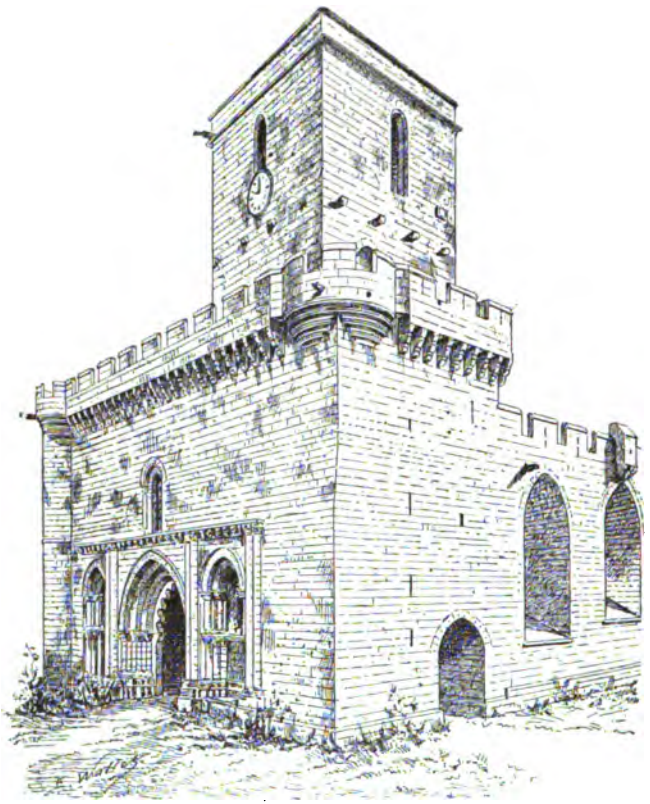
marked by monumental examples of the highest order, inspired or created by divers influences. The architecture is of the Southern French type, as far as the main building is concerned; in essentials, the same type prevails in the magnificent porch known as the *baldaquin*, in the choir screen, and in the rood loft; but in these later additions the inspiration of Northern art at the close of the fifteenth and beginning of the sixteenth century is also perceptible. The statuary and sculptured ornaments of wood and stone are Flemish; the paintings indicate their Italian origin by their crudity of colour and vulgarity of motive.

The Cathedral of Albi has a special interest as being one of the most curious examples of Southern Gothic architecture in the fourteenth century. It has a further peculiarity, inasmuch as it was not only a church, as it still is, but a fortress. Such a combination is readily accounted for by a study of the epoch following on the fierce struggle which ended in the extermination of the Albigenses, and of the social and political events resulting therefrom.

The interior is purely ecclesiastical, of the most beautiful type of its time; the grandeur of its dimensions, its structural perfection, and the magnificence of its decoration, are unsurpassed in their way.

The exterior is that of a fortress. Its intention is proclaimed by the buttresses rising from the glacis of the base to form, as it were, flanking towers; by the arrangement of the bays, or rather curtains, crowned by an embattled machicolated parapet, which unite these towers, and by the grandiose

military character of the architecture. The formidable aspect of the building is much enhanced by the



74. CHURCH OF ESNANDES (CHARENTE INFÉRIEURE). A FORTIFIED CHURCH OF THE FOURTEENTH CENTURY

western tower, in effect a donjon keep, completing the system of defence by its connection with the fortifications of the archbishop's palace, which in

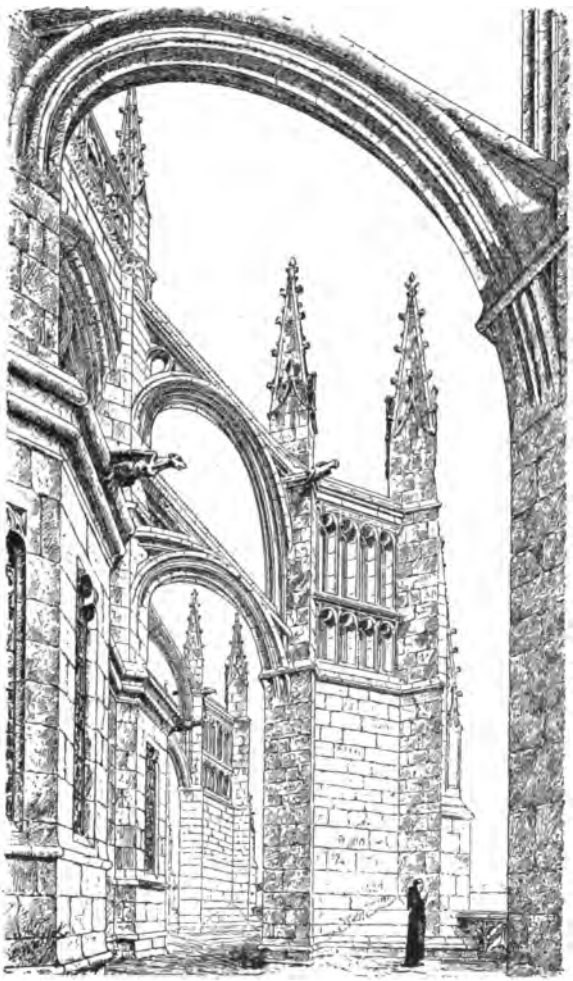
their turn are carried on to ramparts, crowning the escarpments which, to the north, rise from the Tarn.[1]

A few fortified churches still exist—such, for example, as Les Stes. Maries (Bouches du Rhone), which dates from the thirteenth century. Albi was not a solitary instance of this usage. The Churches of Beziers, Narbonne, and many others of the thirteenth and fourteenth century had been surrounded by defensive outworks rendered necessary by religious strife. The buildings thus transformed into strongholds served the further purpose of sheltering fugitive populations in times of panic.

One of the most interesting of such examples is the Church of Esnandes, not far from Rochelle, on the creek of Aiguillon, a building which dates from the twelfth century. It was fortified at the beginning of the fifteenth century to resist the incursions of the English.

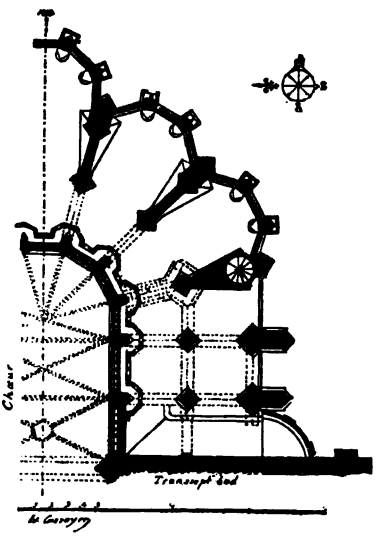
As we have already remarked on the authority of a learned writer, the buildings of the fifteenth century are less numerous than those of the fourteenth. Those concerned in such undertakings were content to finish churches begun at an earlier period, or to attempt their reconstruction, frequently on plans which it was impossible to carry out, so that many buildings were left incomplete. We may instance a very famous monument, the Abbey of Mont St. Michel. The Romanesque choir fell into ruins in 1421, during the Hundred Years' War. In 1452 Cardinal Guillaume d'Estouteville undertook the reconstruction of the church on a scale so considerable that the choir only was completed during the

[1] See "Civil Architecture," Part IV. chap. ii.



75. ABBEY OF MONT ST. MICHEL. FLYING BUTTRESSES OF THE CHOIR (LATE FIFTEENTH CENTURY). FROM A DRAWING BY THE AUTHOR

first years of the sixteenth century.[1] This part of the church shows the effect of the decadence of which there had been indications so early as the close of the thirteenth century. Certain of the arrangements are very ingenious, notably that of the triforium, which rests on the reins of the lower vault, and forms, as seen from outside, a series of small apses standing out from the main wall. But the mason's work is negligent, especially in the flying buttresses, which were so carefully treated by the architects of the thirteenth century. The lines are attenuated by a multiplicity of mouldings to an almost thread-like slenderness; the spring of the arches is undefined by capitals, and the complicated network of the fenestration adds to the wire-drawn effect, and further diminishes the proportions of the building. There is little to admire but the extreme manual dexterity of the carvers. The carving of the granite, the only stone used at Mont St. Michel[2] save for the arcadings of the cloister,

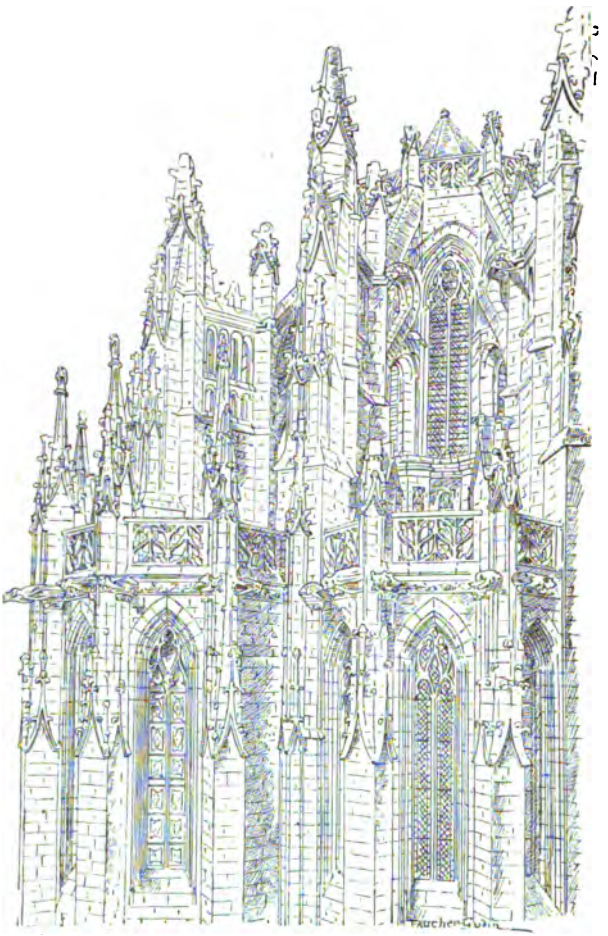


76. ABBEY OF MONT ST. MICHEL. PLAN OF THE CHOIR ABOVE THE LOWER CHAPEL

[1] *Description de l'Abbaye du Mont St. Michel et des ses Abords*, by Ed. Corroyer; Paris, 1877.

[2] See Part II., "Monastic Architecture."

is very remarkable, as is also the ornamental sculp-



77. ABBEY OF MONT ST. MICHEL. DETAILS OF THE APSE (LATE FIFTEENTH CENTURY)

ture; this is executed with extreme skill, in spite of the excess of detail with which it is loaded.

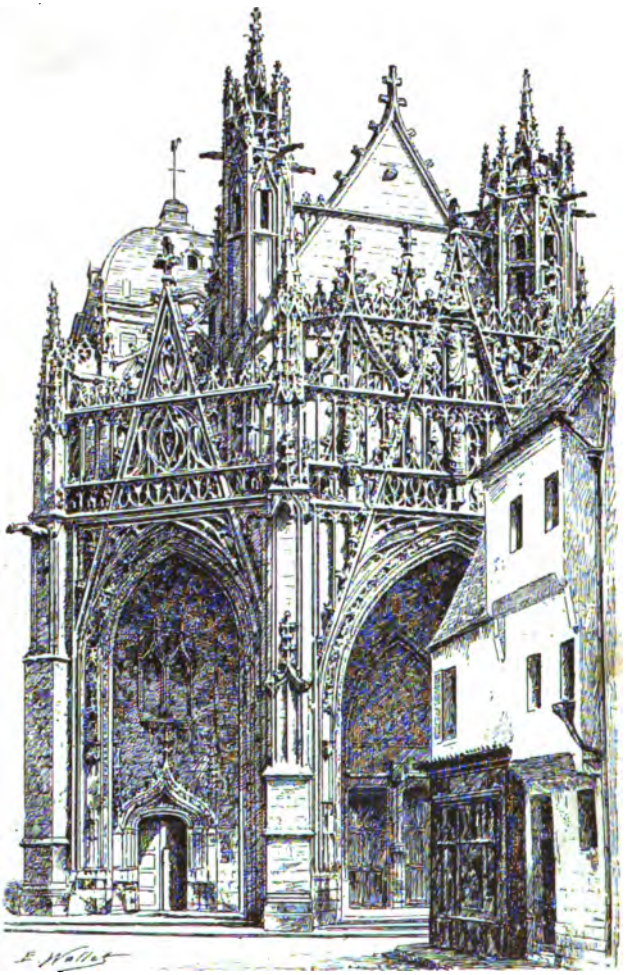
The decadence of Gothic architecture was manifest even at the close of the thirteenth century in such *tours de force* as the choir of St. Peter at Beauvais, and the Church of St. Urbain at Troyes. During the fourteenth and fifteenth centuries buildings or parts of buildings were constructed with remarkable skill, but the noble simplicity which was the strength of thirteenth-century architecture was no more. By the close of the fifteenth century a studied mannerism had taken its place. The western doorway of Alençon Cathedral is a typical example of this development, the defects of which were still further accentuated in the following century.

"The qualities of the architecture of the decadence must be sought not in the construction, but in the decoration of churches; here we may freely admire the happy detail and patient execution which mark the work of carvers and limners during the last two centuries of the Middle Ages."[1]

Gothic architecture put forth its expansive force at the close of the twelfth and during the thirteenth century, not only throughout Western Europe, but even in Eastern countries, where monuments still survive of the highest interest to us as the work of monkish architects who came from France in the wake of the first Crusaders. The modifications and enlargements of famous buildings in the Holy Land towards the close of the twelfth century show

[1] Anthyme St. Paul, *Histoire Monumentale de la France*; Paris, 1884.

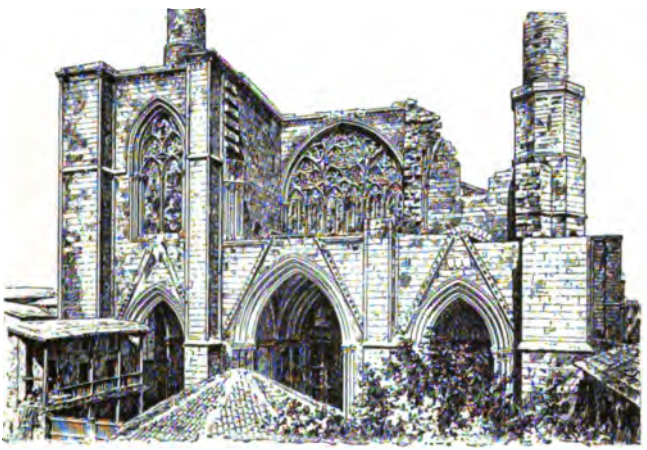
evident traces of their influence, which is further



78. ALENÇON CATHEDRAL. WEST FRONT (FIFTEENTH CENTURY)

manifested in certain structures of Rhodes and Cyprus from the thirteenth to the fifteenth century, in which Western and more especially French types have served as models.

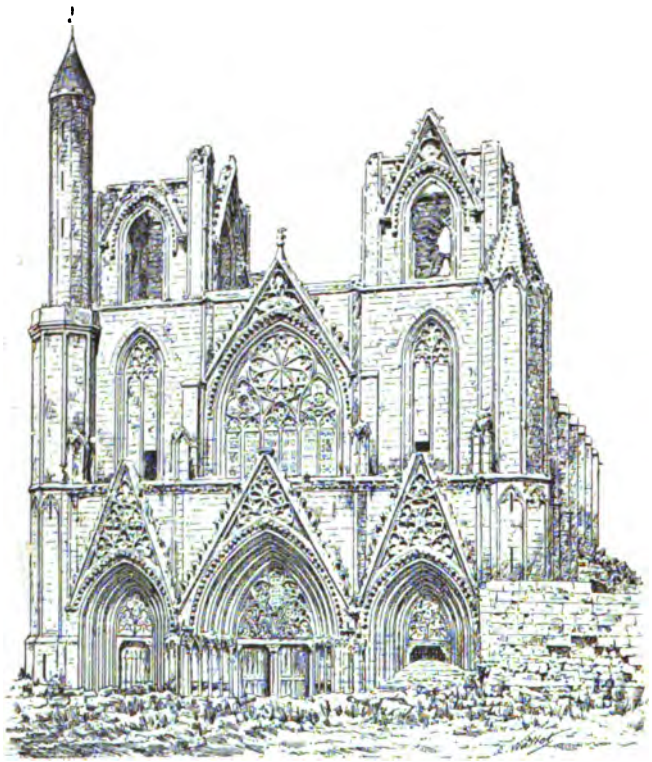
"It will hardly be disputed that the prolonged sojourn of the Crusaders in the Levant, the teachings of their architects, and the contemplation of their



79. FAÇADE OF THE CATHEDRAL OF ST. SOPHIA AT NICOSIA (ISLAND OF CYPRUS)

works, were considerable factors in the development of Arab art. There was a reaction of the West upon the East; sometimes indeed such a direct influence is perceptible as to astound and perplex the observer. To understand the part played by the Crusaders in the East, and to appreciate its Western and independent character, we must cast a rapid glance at the monuments constructed by them in Cyprus and Rhodes after their expulsion from

Syria. We shall find the movement which originated in the twelfth century progressing throughout the



80. CATHEDRAL OF ST. NICHOLAS AT FAMAGUSTA (ISLAND OF CYPRUS). FAÇADE

following centuries on the same lines ; in other words, drawing a continuous inspiration from France.[1]

"The island of Cyprus was conquered in 1191

[1] Melchior de Vogüé, *Les Églises de la Terre Sainte.*

by Richard Cœur de Lion; in the following year it was ceded to Guy de Lusignan, in whose family it remained until the close of the fifteenth century. Catherine Cornaro, the widow of the last of the Lusignans, gave it in 1489 to the Venetians, who retained possession of it till its conquest by the Turks in 1571. Throughout the thirteenth century Cyprus was a refuge for successive remnants of the Christian colonies of Syria. French predominance was at its height in the fourteenth century. The religious monuments of this period are very numerous and of great variety of structure. Art had emerged from the cloister, and had ceased to be the monopoly of monastic bodies. In Cyprus we no longer find that scholastic uniformity which characterises the Latin churches of the Holy Land. The new blood of secularism had entered into Romanesque architecture and led to a fresh development of the art in Cyprus as in France. . . . Architects applied the thirteenth-century methods, fully recognising their consequences. They sacrificed to local exigencies by the substitution of flat roofs for timber ones, but this modification in nowise affected the general arrangement of their buildings.

"The most considerable monument of the thirteenth century is the Cathedral of Nicosia, built between 1209 and 1228, and dedicated to St. Sophia (see Fig. 79). This large three-aisled church has all the characteristics of French cathedrals of the period."[1]

The Churches of St. Catherine and of the Armenians, the mosques of Emerghié and of Arab

[1] Melchior de Vogüé, *Les Églises de la Terre Sainte.*

Achmet also date from the close of the thirteenth century. Among the more numerous buildings of the fourteenth century the most noteworthy are the Cathedral of St. Nicholas at Famagusta (Figs. 80 and 81), with its three portals and two towers; the Church of St. Sophia at Famagusta (Fig. 82), the Premonstrant Monastery of Lapaïs, remarkable

81. CATHEDRAL OF ST. NICHOLAS AT FAMAGUSTA (ISLAND OF CYPRUS)

for the beauty and nobility of its abbatial buildings, which comprise a large three-aisled chapel, and several religious buildings at Paphos and at Limasol. At Rhodes there are a number of churches built in the fifteenth century after French models, which had no less a vogue for dwelling-houses than for religious and military architecture; in a word, architecture —civil, religious, or military—was French in all its manifestations. "The guns of the order still point from the embrasures of the towers, Soliman's

stone cannon balls strew the neighbouring ground; sculptured on the house fronts are the blazons, and in many cases the French names, of their bygone owners. Involuntarily the mind travels back by the space of three centuries, reincorporating these for-

82. RUINS OF THE CHURCH OF ST. SOPHIA AT FAMAGUSTA (ISLAND OF CYPRUS)

gotten worthies, and repeopling their dwelling-places. One half expects to see the emblazoned doors thrown open, to give egress to knightly owners, mustering for the last time under the banner of St. John."[1]

[1] Melchior de Vogüé, *Les Églises de la Terre Sainte.*

CHAPTER X

TOWERS AND STEEPLES—CHOIRS—CHAPELS

THE first steeples were round, on the model of the Greek and Byzantine cupolas, and modest in diameter, so that the bells they contained can only have been small ones. These bells were suspended from the summit of the tower, the portion of wall surrounding them being pierced by arcaded openings, and crowned by a long pyramidal roof.[1]

Such towers were very frequently isolated from the body of the church. A large number of Italian churches, dating from all periods of the Middle Ages, have steeples at a considerable distance from the main building.

Force of habit determined the application of the round form to towers of the twelfth century; but it is evident that a square plan was preferred, even so early as the tenth century, and such a form was in course of time rendered necessary by the development of the founder's art, and the increase in the dimensions of bells at the beginning of the twelfth century. Besides the great bells which proclaimed

[1] *Encyclopédie de l'Architecture et de la Construction*, article "Clocher," by Ed. Corroyer.

the hour of prayer to a distant flock, small bells were in use to regulate the religious exercises of the clergy. They are called in the Latin texts *signum*, *schilla*, *nola*; in French *sin*, *esquielle*, *eschelitte*; from the beginning of the tenth century they were placed in the campaniles which crowned the domes.

83. STEEPLE, VENDÔME (TWELFTH CENTURY)

The Italian word *campanile* has the force of the French terms *tour*, *clocher*, *beffroi* (or the English tower, steeple, belfry). But the denomination *clocher* has a general application to all pyramidal structures rising above the roof of a church.

The belfry was a tower, in most cases isolated, which contained the bell destined to sound the curfew and tocsin, and to call the burghers to civic assemblies.

Like the belfry, the Italian campanile is generally an isolated building, but it is usually placed in the near neighbourhood of a church. Among the most famous *campanili* are those of Florence—begun in the fourteenth century, on the plans of Giotto,—of Padua, of Ravenna, and the famous leaning tower of Pisa.

In France the term campanile has a more general application, and is given to the little pierced

arcaded turrets which, in many churches, crown the walls of the façade and shelter small bells.

84. GIOTTO'S TOWER AT FLORENCE

The most ancient belfries of the original provinces of France have great analogies with Byzantine monuments as to form, even when differing in detail. One of the most remarkable of these is the tower of St. Front at Périgueux, which seems to date from the first years of the eleventh century. It marked the sepulchre of the Saint, and apparently embraced two bays of the original three-aisled Latin church of the sixth century, evident traces of which have been discovered to the west of the great domed building of later times.

The tower of St. Front is composed of three square stories, diminishing on plan as they rise, and crowned

by a conical dome, resting upon a circular colonnade, the columns of which vary in height and diameter, and owe their origin to Roman examples in the neighbourhood.[1]

The influence of this remarkable building was very considerable. It served as a model to architects of the neighbouring provinces. The type was improved upon in the tower of the Abbey Church of Brantôme by the avoidance of the false bearings which mar the structure of St. Front, while at St. Léonard, near Limoges, a very original feature was superadded in the octagonal form of the crown or roof. The Auvergnat architects further perfected the construction by introducing internal piers for the support of the recessed walls of the upper stories, as at Puy.[2]

It is worthy of note that, in spite of the importance given to these buildings, the space allotted to the bells themselves was comparatively limited, which seems to indicate that the towers were destined for other purposes than the reception of bells. In the eleventh century the tower bore the same relation to the cathedral or abbey as did the donjon to the feudal castle. It was, in fact, the symbol of power. As abbots and bishops enjoyed the same rights as the nobles, it will be readily understood that the costliness of such emblems would be governed solely by the resources of their authors. The number of towers built at about the same period in connection with cathedrals and abbeys, and the importance

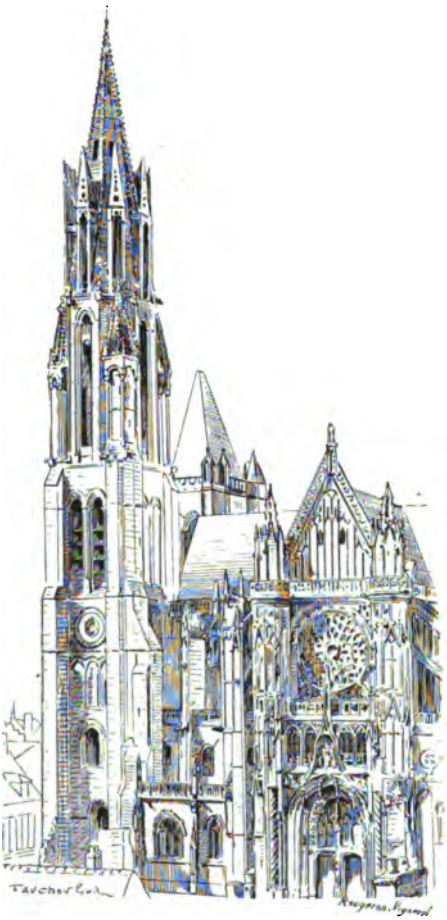
[1] *L'Architecture Romane*, by Ed. Corroyer; Paris, Maison Quantin, 1887.

[2] *Ibid.* 1888.

of such as were attached even to simple parish

85. BAYEUX CATHEDRAL. TOWERS OF THE WEST FRONT

churches may be explained if we consider them



86. SENLIS CATHEDRAL. SOUTH TOWER OF WEST FRONT

mainly as denoting the status of an enfranchised

commune. The rivalries in connection with neighbouring towers undoubtedly had their origin in conditions such as these.

Towards the close of the eleventh century and throughout the twelfth many towers were built at an angle with the door, or in front of it, so as to form a porch, as at St. Benoît-sur-Loire and Poissy; or above it, as in the Churches of Ainay and of Moissac.

Later on immense towers with spires were built at each angle of the western façade, the gable of the nave rising between them.

At the Abbey Church of Jumiéges a large projecting porch filled the central bay of the ground story between the bases of the towers, but more frequently the towers were in one plane with the chief porch, and were themselves pierced with lateral porches, the three doors, with their richly sculptured voussoirs, forming one vast decorative whole.

The architects of the so-called Romanesque period built their towers at the intersection of the transepts; but avoiding the constructive audacities of the tower of St. Front, which was one of the most generally accepted models of the eleventh and twelfth centuries, they ensured the solidity of their central tower by placing the more or less conical cupola which crowned the structure upon a square base, carefully loaded and abutted at each angle.

At the close of the twelfth century the architects of the Ile-de-France adopted a square form for the body of the tower, and in imitation of Oriental and Rhenish builders, reserved the octagonal plan for

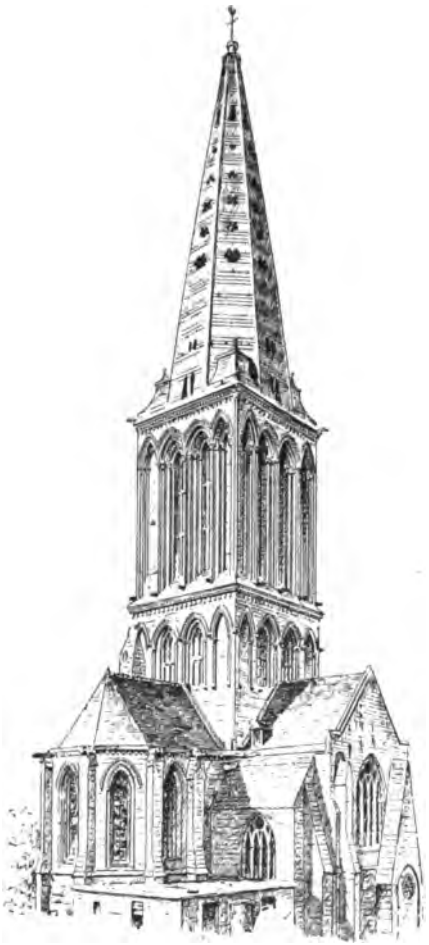
the spire, ensuring the solidity of the angles by a variety of ingenious combinations.

The great central towers of the Norman churches built in England and Normandy from the thirteenth to the fourteenth century were not always merely belfries, as at Salisbury or Langrune, for instance; in many cases they were lanterns, their functions being to light the centre of the church and to form a magnificent decorative feature at the intersection of transepts, nave, and choir in cruciform structures, such as St. Georges, Bocherville, Coutances, etc. Of all the French provinces Normandy clung most persistently to the lantern tower, and that of St. Ouen at Rouen is one of the most interesting examples.

87. SALISBURY CATHEDRAL. STEEPLE

In other provinces, notably Picardy, Champagne, Burgundy, and the Ile-de-France, lantern towers

were superseded by timber *flèches* cased in lead, which



88. CHURCH OF LANGRUNE (CALVADOS). STEEPLE

rose at the intersection of the roofs of nave and transepts.

Among the most remarkable towers of the twelfth century in the Northern provinces we may mention those of Tracy-le-Val (Oise), of the Abbey Church of the Ste. Trinité at Vendôme, and of Bayeux; those of the Abbaye-aux-Hommes at Caen; the old tower of the Cathedral of Chartres, and that of St. Eusèbe at Auxerre.

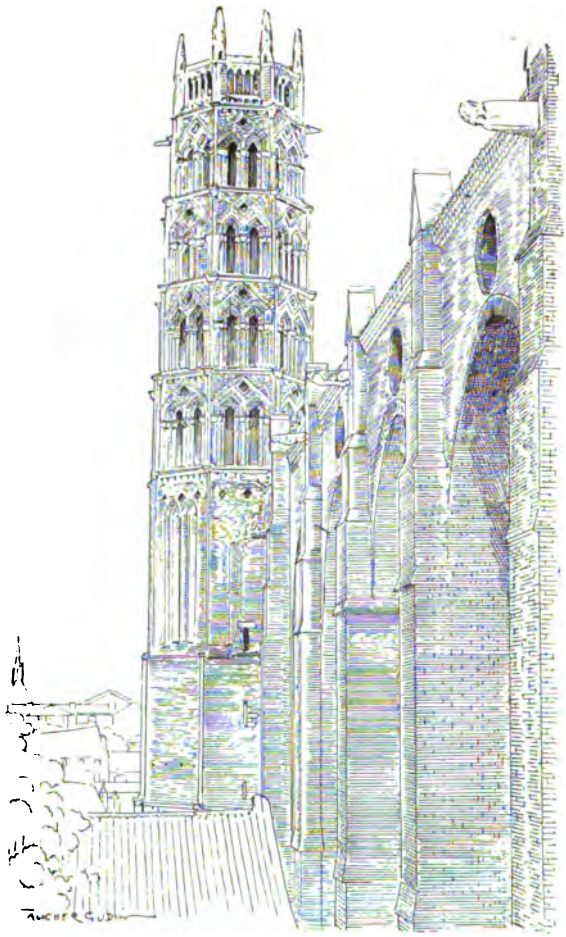
In the thirteenth century the height and decorative richness of these structures had increased to an extraordinary degree. The tower of Senlis (Fig. 86) is a most elegant example of the first years of a century which witnessed the birth of so many marvels of architecture.

In Burgundy several remarkable towers were built by the monks of Cluny, who were free from the asceticism introduced by St. Bernard among their brethren of Citeaux. The most notable of their structures are perhaps the towers of the Church of St. Père, near Vézelay, built about 1240.

In the South various original developments in Gothic architecture were logically brought about by a judicious use of the materials of the country, such as brick. Most interesting examples of such development are to be found in the tower of the Jacobin Church at Toulouse, which dates from the close of the thirteenth century, and the donjon tower of Albi, the characteristics of which we have already discussed.

Examples of isolated towers are hardly to be found of later date than the thirteenth century. Bordeaux perhaps offers an exception. But the general usage after this period was to include the towers in the composition of the façade; their actual

functions as belfries became apparent only above the



89. CHURCH OF THE JACOBINS AT TOULOUSE. TOWER

level of the vaults. A beautiful example of this

treatment may be studied in the noble composition of Notre Dame de Paris.

Its contemporary, the Cathedral of Laon, has four towers, terminating in octagonal belfries, the angles of which are flanked by two-storied open-work pinnacles; on the second of these stories are placed colossal bulls, the effect of which is very striking.

The towers of Rheims, which date from the second half of the thirteenth century, are of secondary importance in the splendid façade; but they are marked by a feature which was a novelty at the time. The interior of the belfry is built with a cage to allow free play to the bells, and space for the timbers by which they are supported, while the exterior forms an octagonal tower flanked by important pinnacles.

Rheims may be said to mark in Gothic architecture the boundary which separated its period of perfection from that of exaggeration and mannerism. The mania for lightness and the desire to dazzle and astound soon seduced its artists into a dangerous path which led inevitably to decadence. Such effects first manifested themselves more especially in the provinces of the German frontier, and the spire of Strasburg, built in the fourteenth century, is a famous example of these mistaken tendencies.

Throughout the fourteenth and fifteenth centuries towers adhered to the plan and general arrangement adopted by the later architects of the thirteenth century, diverging chiefly in the marvellous profusion of detail and of sculpture, and in the excessive lightness of design. The points of support were attenu-

ated, and the mass of ornament seemed designed to conceal them as far as possible. In France the misfortunes of the times tended largely to perpetuate these dangerous foibles; for a number of churches which were founded at the close of the thirteenth century remained unfinished till the fifteenth and sixteenth, when Gothic art was in full decadence.

90. CHURCH OF ST. PIERRE AT CAEN. TOWER

But we must not pass over unmentioned certain buildings famous for boldness of construction and magnificence of decoration, if not for purity of style. The following are perhaps the most important:— In France the tower of St. Pierre at Caen, which shows strong traces of that analogy, or family likeness, so to speak, uniting Norman edifices; and the

tower of St. Michel at Bordeaux, the spire of which was destroyed by a hurricane in 1768, and has lately been restored to its primitive height of 365 feet; in Austria the tower of St. Stephen, one of the most important of such buildings in that country, finished in 1433; the tower of the Cathedral of Freiburg-im-Breisgau (grand-duchy of Baden), one of the most beautiful and important examples. It was mainly constructed towards the close of the fourteenth century, but the open-work spire was added about the middle of the following century.

91. CHURCH OF ST. MICHEL AT BORDEAUX. TOWER

The Cathedral of Antwerp in Belgium was begun in the middle of the fourteenth century; the nave and the four side aisles were not completed till a century

later. The façade is said to have been begun in 1406 by a Boulognese master-mason, one Pierre Amel; but of the two belfry towers only that on the north was completed in 1518. Its principal merit lies in its boldness of construction and its unusual height of 410 feet, rather than in purity of style or beauty of detail, the latter being a conglomerate made up from every period of Gothic.

92. CATHEDRAL OF FREIBURG-IM-BREISGAU (GRAND-DUCHY OF BADEN). TOWER

Choirs.—In Christian churches the choir [1] proper was an institution long before the chapels.[2]

At the extremity of the basilica, in the centre of the chalcidium or transept which gave to the basilican plan the form of a T or Tau—a figure venerated by the Christians

[1] *L'Architecture Romane*, by Ed. Corroyer; Paris, Maison Quantin, 1888.

[2] *Encyclopédie de l'Architecture et de la Construction*, article "Chœur - Chapelle," by Ed. Corroyer.

as symbolising the Cross—were placed the altar, the

93. ANTWERP CATHEDRAL

sanctuary, and the precincts occupied by the deacons and sub-deacons. The altar stood in the midst, between the hemicycle or apse and the nave arch. The hemicycle or apse which formed the Pagan tribunal was by the Christians reserved for ordained priests, hence its name, *presbyterium*. A semi-circular bench (*consistorium*), interrupted in the middle by a seat higher than the rest, on either side of which sat the inferior clergy, surrounded the apse, the raised seat (*suggestus*) being the throne of the bishop or his representative.

This portion of the basilica underwent a later modification; from the *presbyterium* it became the *martyrium*, or shrine in which was placed the body of the patron saint of the basilica or the relic to which the devotion of the faithful was specially addressed. This usage had been established even before the year 500 in the first basilica of St. Martin at Tours.

The primitive apse was lighted only from the nave or transept. After its transformation into the *martyrium* it was not only pierced with windows, but, according to some authors, was provided with openings along its base, or even arcaded, so as to give access to a low gallery running round it. If this be so, the characteristic arrangement of mediæval churches dates from the fifth century.

In later times when it became customary to place the altar at the back, against the wall of the apse, seats for the bishops, priests, and choristers—*the choir*—were arranged between the altar and the nave. In monastic churches, built after the Latin tradition, the choir was generally in the crossing, or

where there were no transepts, in the nave itself. It was separated from the congregation by a low enclosure of stone or marble. There are a few examples of churches with *two* choirs, one at the east, the other at the west.

In the first churches of the Romanesque epoch the choir was confined to the space between the piers of the crossing; it soon, however, made considerable advances. In monastic churches the choir or sanctuary was cut off from the surrounding spaces by barriers of stone or wood, and towards the nave was closed by a *jubé*, or rood screen and loft, the upper part of which was accessible to the monks for the reading of the epistle and gospel. Bishops, on the other hand, being free from the necessity of closing the choirs of their cathedrals, made a point of providing their flocks with wide spaces, in which ceremonies could be afforded a liberal development.

At the end of the twelfth century and beginning of the thirteenth these ideas governed the construction of important churches. Changes continued to be made, however, and from the reign of St. Louis we find the choirs of great cathedrals arranged on the exclusive principles of the monastic churches. The arcades surrounding them were filled with high stone walls, against the inner sides of which the stalls of the clergy, with their lofty and richly carved wooden canopies, were securely fixed.

Among the more famous choirs we may quote those of Notre Dame de Paris, of Amiens, of Beauvais, of Auch, of Lincoln, of Canterbury, of Spires, of Worms, of Burgos, etc. In order to satisfy the laymen whose view of the ceremonies

performed in the choir was intercepted by these enclosures, the sanctuary was surrounded by chapels contrived in the wall of the apse, and in the side aisles of the nave.

Chapels.—From the end of the tenth century, according to M. de Caumont, we shall sometimes find aisles running entirely round the choir or sanctuary and communicating with it by an arcade. Even at this early period there must have been chapels in such aisles. In the twelfth century the disposition to elongate the choirs of important churches became general, and brought with it certain modifications of the plan. The Church of Vignori, which dates from the tenth century, has an apse divided into three chapels, recalling in its arrangement that of the Holy Sepulchre at Jerusalem.

The Church of St. Servan, built in the eleventh century, has five chapels round the choir, and the Auvergnat churches — Notre Dame du Port at Clermont, and St. Paul at Issoire among others,— which date from the beginning of the twelfth century, also show in this respect some interesting peculiarities. The importance given to the apse by these rings of chapels can scarcely be too much insisted on.

On plan these apsidal chapels are, for the most part, round-ended. They are pierced with one or more round-headed windows, and have segmental vaults. On the outside they are often ornamented by mouldings, modillions, and even by variations in the colour of their stones. Chapels between the buttresses of the nave are rare in several aisled

churches of the Romanesque period, but in many such buildings they were added at a later time.

The great revolution which took place in the art of building towards the end of the twelfth century had, for one of its results, the multiplication of chapels in the numerous great churches dating from that epoch. The principle of that revolution being to replace the inert masses which had previously resisted the various thrusts by comparatively slender points of support upon which those thrusts could be collected, stability being secured by a scientific calculation of forces, it led, as a natural consequence, to a considerable augmentation of disposable surfaces in the interior. These surfaces, mere curtains between the points of support, were ornamented with vast networks of stone, embracing panels of painted glass, on which the principal events of the Old and New Testaments, and the scenes so vividly outlined in the traditions of the time, were traced with admirable art. Room was found for chapels of considerable size, not only in the walls, or rather between the piers of the apse, but also in those of the side aisles, the bounding walls of which were carried out to the external faces of the buttresses receiving the thrust of the main vault, which buttresses now formed the lateral walls of a continuous line of chapels.

The veneration paid to the relics of saints increased greatly after the year 1000, in consequence of the pilgrimages to the Holy Land which preceded the Crusades. Each religious community established a patron, and demanded a special oratory dedicated to him, and it was a point of honour to

make such a shrine excel that of the neighbouring, and, in most cases, rival corporation. The demand for these shrines increased to such an extent at the close of the fourteenth and throughout the fifteenth century that, though chapels were constructed in all the available spaces of the vast cathedrals, they were found insufficient, and sanctuaries, which in earlier times had been the special property of particular bodies, were shared by several confraternities.

The Lady Chapel, or chapel dedicated to the Virgin, was generally in the apse, and in the thirteenth century, especially at its close, had been so considerably developed as to give great importance to the portion of the apse allotted to it. Very curious examples of this development are to be studied in the Cathedrals of Bourges, Amiens, Meaux, and Rouen, among others.

In many cathedrals and churches of the Middle Ages lateral chapels or annexes were built to serve some subsidiary purpose; such were chapter-houses, muniment rooms, treasuries, or even mortuaries, as the presbytery of Lincoln, the circular chapel at Canterbury, known as Becket's Crown, containing the tomb of Thomas à Becket, and Henry VII.'s chapel at Westminster.

A most interesting example of this species of structure dating from the end of the twelfth century is to be seen at Soissons Cathedral; a two-storied vaulted building is connected by openings with the upper galleries of the round-ended south transept, and contains a funeral chapel, with a vaulted chamber above for a treasury.

In many countries small ancient buildings are to be

found, known as baptisteries or chapels; these latter are doubtless the little rural churches which were built in great numbers in the first centuries of the Christian era, and are designated *capella* in texts of the time of Charlemagne, or perhaps oratories, such as it was customary to attach to the charnel-houses of towns or great religious establishments.[1]

The use of private chapels dates from the earliest days of Christianity; great personages who had embraced the new faith followed the example of the Romans who constructed private basilicas in their palaces. The custom was perpetuated, and the splendid Palatine Chapel of Aix is one of the most magnificent of its results. In later times kings and great nobles built themselves sanctuaries within their castles. In the time of Charles V. the Louvre owned an important chapel; the feudal castles of Coucy and Pierrefonds, among others, contained large chapels, the arrangement of which is very curious. Archæologists cite as of special beauty among seignorial chapels the ancient oratory of the Dukes of Bourbon at Moulins, the Chapels of Chenonceaux, Chambord, and Chaumont, and the Chapel of Jacques Cœur's *hôtel* at Bourges. Many episcopal palaces have very remarkable chapels, such as that of the archbishop's palace at Rheims.

Refuges, hospitals, madhouses, and prisons also had chapels more or less important.

The term *Sainte Chapelle*[2] was applied in the

[1] *L'Architecture Romane*, by Ed. Corroyer; Paris, Maison Quantin, 1888.

[2] The plans and elevations of these chapels are so well known, and have been so frequently published, that we abstain from reproducing them in the present work.

Middle Ages to buildings raised over spots sanctified by the martyrdom of a saint, or destined to enshrine relics of peculiar holiness. The most famous was the royal oratory, built by Pierre de Montereau between 1242 and 1248 on the south side of the royal palace, now the *Palais de Justice*, Paris, to receive the Crown of Thorns, the pieces of the true Cross, and other relics brought by the royal founder, St. Louis, from the Holy Land.

The distinguishing feature of the *Ste. Chapelle* of Paris is its division into two stories—the upper chapel, which communicated with the royal apartments, and the lower chapel on the ground floor, which may have been open to the public. Its construction is remarkable no less for the happy boldness with which the whole of the spaces between the buttresses were utilised for the introduction of immense painted windows, than for the perfection of execution and the beauty of the sculptures, and this in spite of the rapidity with which the work was carried out. An annexe, which has now disappeared, adjoined the apse on the north, and consisted of three stories serving as sacristies and muniment rooms. The spire, a wooden structure cased in lead, dating from the time of Charles VII., was destroyed by fire in 1630 ; it was shortly restored, only to be again demolished at the close of the eighteenth century, and was finally replaced by the architect Lassus, who restored the building.

The *Ste. Chapelle* of St. Germain-en-Laye must have been built some years before that of the royal palace of Paris. It is remarkable for certain peculiarities of structure which show a greater

architectural skill; the piers which sustain the vault have a greater interior projection; the formerets are disengaged from the wall, and the square windows occupy the whole space between the buttresses, and rise to close beneath the cornice. This most original and learned arrangement gives the building a very graceful aspect, and brings out its elegant proportions.

The *Ste. Chapelle* of Vincennes, begun by Charles VI., was not completed until the reign of Henry II. In construction it is akin to that of Paris. The two-storied annexes which formed the sacristies and treasury were finished towards the close of the fifteenth century.

After the example of kings and princes the great abbeys began to raise important oratories independent of their conventual churches. The Abbey of St. Martin des Champs at Paris founded two large chapels about the middle of the thirteenth century,—one dedicated to the Virgin, and the other to St. Michael.

Pierre de Montereau was commissioned to build, in addition to the *Ste. Chapelle* of the palace, a chapel dedicated to the Virgin, within the precincts of the Abbey of St. Germain des Prés; the plan of the vaults differs here from that of the Ste. Chapelle of the palace. According to a drawing by Alexander Lenoir, made before the destruction of this chapel of the Virgin, the pointed arches comprised two bays, in imitation of the vaults on intersecting arches in Notre Dame of Paris, the origin of which we discussed in chapter vi.

The Abbey of Châalis, near Senlis, founded by

Louis the Fat in 1136, which was one of the most important abbeys of the Cistercian order in the thirteenth century, possessed an abbey church of five aisles, over 330 feet long. Towards the middle of the thirteenth century it nevertheless founded a *Ste. Chapelle*, known as the Chapelle de l'Abbé. The building has undergone various vicissitudes, and the ribbed vaults which date from the reign of St. Louis were once decorated with frescoes, attributed to Primaticcio. The building still exists, however, almost in its entirety. It illustrates the considerable influence exercised by the Ste. Chapelle of Paris from its very foundation on the great nobles, more especially the heads of rich abbeys eager to parade their immense power and wealth.

CHAPTER XI

SCULPTURE

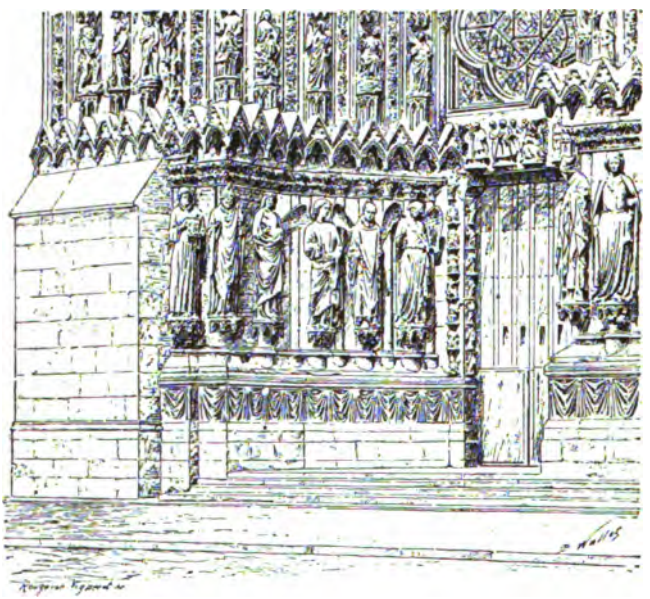
IN the Middle Ages all the arts were auxiliary to architecture. The architect traced the details of his conception in the workshop, and superintended the construction; he directed stone-carvers, masons, sculptors, illuminators, painters, and glass-stainers, and laid his *imprimatur* on every branch of the work of which he was the creator.

Thus the connection between the allied arts was very close. The history of sculpture is that of architecture, for the diverse influences which marked their origin and modifications were common to both. Each reached its apogee in the brilliant manifestations of the thirteenth century, and each followed the same path to decadence less than two centuries later.

Statuary and ornamental sculpture were inseparable, being executed by the same artists in pursuance of the same idea: the study of nature.

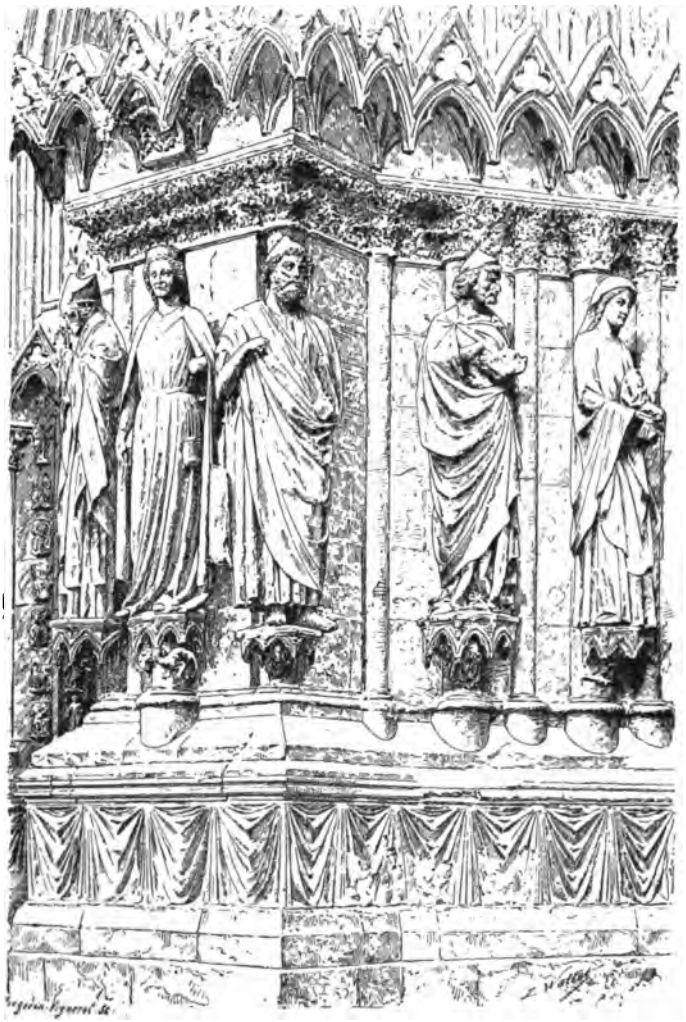
In obedience to the law of increasing development they abandoned the hieratic forms imposed by religious tradition, but only to give a new expression to these very traditions, which were still preserved and venerated.

Roman inspiration, and even direct imitation of Roman sculpture, is clearly traceable in the first half of the thirteenth century. Rheims, which may be accepted as the masterpiece, the last word, so to speak, of Gothic architecture, illustrates this influence in certain magnificent examples of the western porch.



94. RHEIMS CATHEDRAL. STATUES OF WEST FRONT. CENTRAL PORCH

The architects of the thirteenth century were pre-eminently the children of their generation. Ignoring their Latin descent they followed in the paths of the innovators so far as monumental structure was concerned; but they in their turn inaugurated a new departure by abandoning the Byzantine con-



95. RHEIMS CATHEDRAL. STATUES OF WEST FRONT

vention in statuary and sculptured ornament which

96. RHEIMS CATHEDRAL. STATUES OF WEST FRONT

had prevailed throughout the preceding century, in favour of the more ancient Roman tradition. In this one respect they made a salutary return upon those antique principles which they afterwards definitively abandoned.

The influence of Roman art upon French mediæval sculpture is unquestionable. Its course may be traced through the relations existing between North and South long before the Crusades, principally by means of the great religious communities, and even more manifestly in the countless monuments raised in Gaul on Roman models, or in those constructed by Gallo-Romans for several centuries. Many of these survived the incursions of the barbarians.

97. RHEIMS CATHEDRAL. INTERIOR OF PRINCIPAL DOOR. STATUE AND ORNAMENT

The origin of orna-

mental sculpture is no less venerable. Superficially, it would seem to have drawn its inspiration mainly from the Romanesque epoch; but according to modern *savants*[1] its source must be looked for in much remoter periods. Oriental art, imported into Scandinavia, and there barbarised, was introduced into Ireland in the early centuries of our era. The Irish monks, whose power was very great, and who seem to have been the principal agents in the Renascence of the days of Charlemagne, created, or at any rate greatly influenced Carlovingian art by their manuscripts and miniatures. From Carlovingian art that of the so-called Romanesque period was born, and this was

98. RHEIMS CATHEDRAL. INTERIOR OF PRINCIPAL DOOR. STATUE AND ORNAMENT

[1] M. A. de Montaiglon, Professor at the *École des Chartes*.

in its turn the parent of the ornamental sculpture of

99. NOTRE DAME DE PARIS. PRINCIPAL DOOR. RUNNING LEAF PATTERN

the thirteenth century. In the admirably decorative

character of this art we recognise the influence of

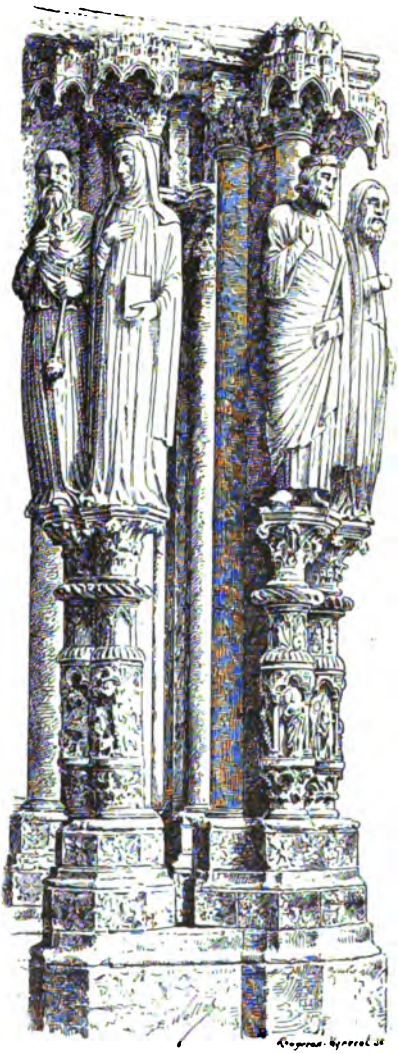
100. NOTRE DAME DE PARIS. RUNNING LEAF PATTERN ON ARCHIVOLTS OF NORTH DOOR

an ancient tradition handed on from generation to

generation, to be finally rejuvenated, invigorated, and transformed as to detail by a close study of nature, precisely as had happened in the allied development of statuary.

The architects of the Ile-de-France, like those of Rheims, assimilated the principles of the new art with the supple skill which characterised them, such assimilation bearing rich fruit at Notre Dame de Paris in the sculptured figures of the west porch, and no less in their accessory ornaments.

A most instructive comparative study is furnished by the north and south porches of Chartres Cathedral. Here we find, in one



101. CHARTRES CATHEDRAL. STATUES OF THE NORTH PORCH

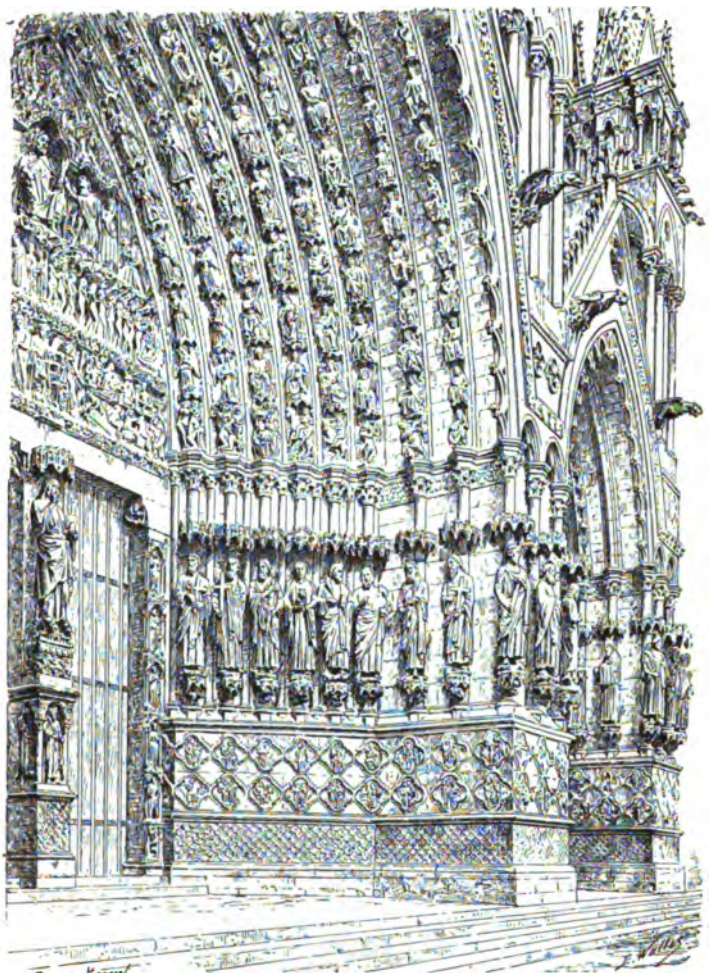
building, examples of sculptures inspired by the hieratic tradition of Byzantium, and of those which had been transformed and naturalised by a return to antique ideals.

102. CHARTRES CATHEDRAL. STATUES OF THE SOUTH PORCH

At Amiens again certain of the sculptures were influenced by the new principles. But in the greater part there is a prodigality of motive and looseness of execution which indicate decline no less surely than the mistaken ingenuity of the structural details.

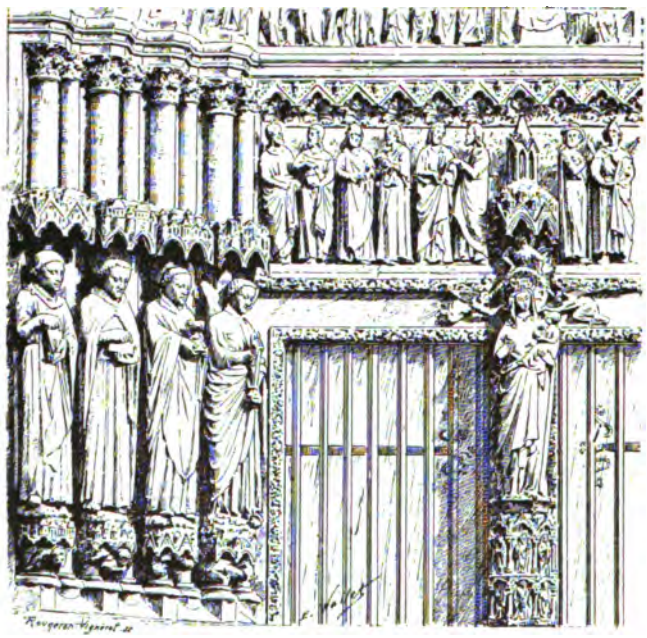
Mediæval sculpture followed the fortunes of architecture, both in its rise and fall. In its first beginnings it was characterised by a purity of style not unworthy of Rome in her most glorious days, but rapidly losing touch with the antique ideal, it lost measure and proportion in its

development. The wise laws of simplicity, essential to



103. AMIENS CATHEDRAL. CENTRAL PORCH OF WEST FRONT

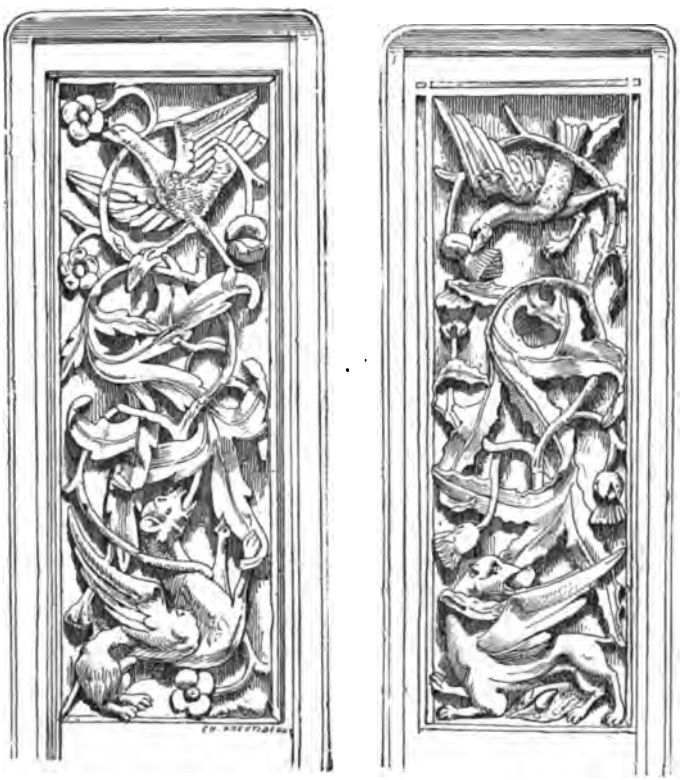
all greatness in art, were set aside in favour of an unruly exuberance which ran riot in details, and was the immediate cause of a decline perceptible even in the fourteenth century, and absolute in the fifteenth.



104. AMIENS CATHEDRAL. STATUES IN THE SOUTH PORCH

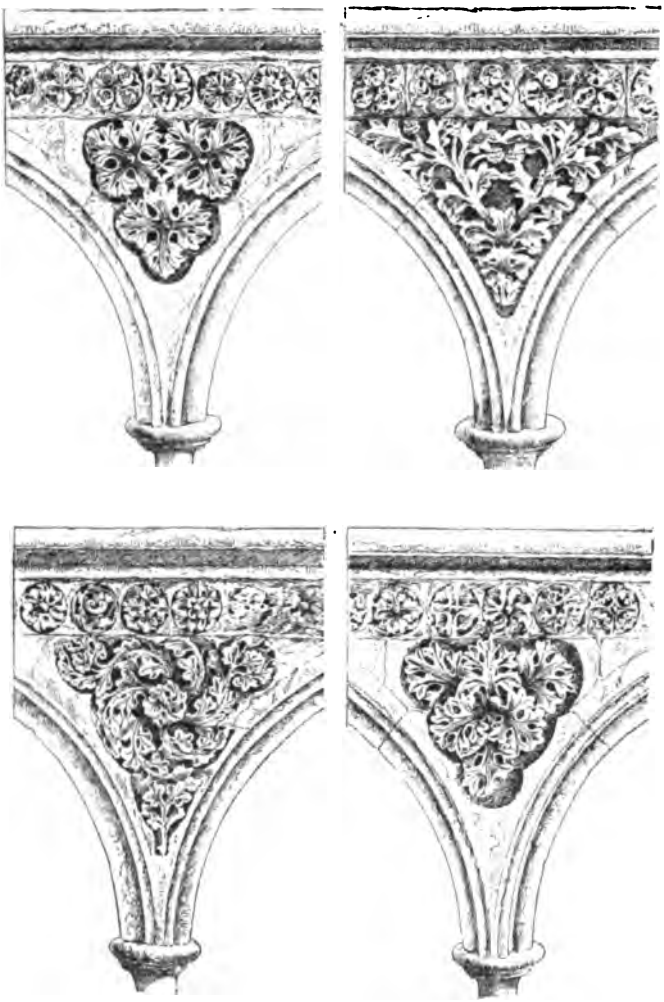
" Sculpture was at its zenith. We are astounded by the activity and fertility of thirteenth-century artists, who peopled façades and embrasures with figures from seven to ten feet in height, and animated every tympanum with countless statuettes. The façade of Notre Dame, by no means one of the richest, has

sixty-eight colossal statues, for the most part of the highest excellence; at Chartres and at Amiens there are over a hundred to each porch. The famous



105. AMIENS CATHEDRAL. CHOIR STALLS. CARVED ORNAMENT

figure of Christ at Amiens is a masterpiece; bas-reliefs work out the details of the main subject, and enrich the story with innumerable pictures of amazing vigour and originality."



106. ABBEY OF MONT ST. MICHEL. CLOISTERS OF THE THIRTEENTH CENTURY. CARVED ORNAMENT OF INTERIOR SPANDRILS

The favourite themes of the thirteenth century had something in common with those of the Romanesque epoch, though there is a sensible difference of treatment and considerable progress in composition, which exhibited more of taste and learning and less of eccentricity. But the satiric power and delight in caricature of our forefathers still demanded an outlet. These found expression in many a caustic gibe at clergy, princes, and rich burghers, and took substance in many a quaint gargoyle. A luxuriant system of ornamentation, adapted from the vegetable kingdom, was auxiliary to statuary. The main subject was enframed by it, or relieved against it; while often the composition itself was enriched

107. WOODEN STATUETTE (HEIGHT 23⅝ IN.) THIRTEENTH CENTURY. ATELIERS DE LA CHAISE DIEU, AUVERGNE

by its introduction to complete the decorative effect. Or such a system of decoration was the only sculpturesque motive employed; it was then used with the utmost elaboration, and developed at the expense of statuary. Such was the case in Burgundy and Normandy, in which provinces the latter art was of slow growth. The Byzantine character of the scrolls, carved bands, and fantastic foliage of Romanesque art disappeared; ornament took on a new independence, and began to seek its types among native plant forms.

108. IVORY STATUETTE (HEIGHT 9⅞ IN.) THIRTEENTH CENTURY. SCHOOL OF PARIS

The carved leafage (Fig. 106) of the cloister arcades in the Abbey of Mont St. Michel strikingly illustrate this departure. The very plants which inspired the thirteenth-

century sculptors still flourish at the foot of the ancient abbey walls.

Thus the flora of our own fields was applied in lithic form to the elements of our church architecture. But the breadth proper to architectural sculpture was still preserved by means of ingenious combinations.

It was not until the fourteenth and fifteenth centuries that the imitation of natural forms became servile, tedious, and over-minute, and that the beauty of the whole was sacrificed to exaggerated faithfulness of detail.[1]

It should be noted that the decadence which manifested itself in monumental sculpture was far less rapid in the more intimate art which may be distinguished as *imagery*. In the thirteenth and fourteenth centuries all sculptors were *image-makers*; but towards the close of the latter, and during the fifteenth, the term was specially applied to carvers of images in wood, ivory, etc.

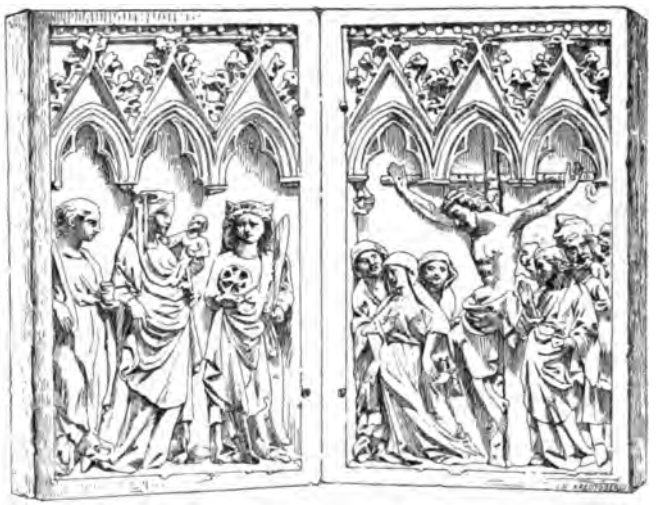
108A. IVORY STATUETTE (HEIGHT 9½ IN.) FIFTEENTH CENTURY. SCHOOL OF PARIS

[1] Anthyme St. Paul, *Histoire Monumentale de la France*; Paris, Hachette and Co., 1884.

Art still flourished in their ateliers in all its beauty, notably that of the goldsmiths, who carved images in high or low relief in precious metals, and who, thanks

109. WOODEN STATUETTE (HEIGHT 10 IN.) FOURTEENTH CENTURY. SCHOOL OF PARIS

to the severely paternal regulations of the *maîtrise*, were enabled to bring French decorative art to the highest degree of perfection. The beautiful carved wooden stalls of Amiens, Auch, and Albi, to name

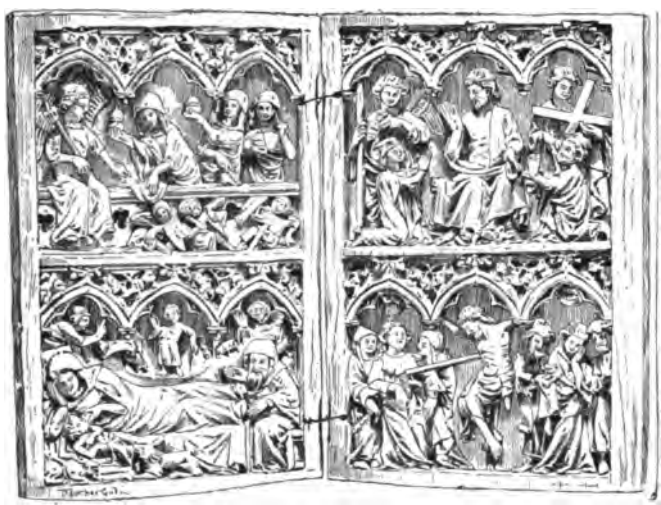


110. IVORY DIPTYCH (HEIGHT 6⅜ IN.) FOURTEENTH CENTURY. SCHOOL OF PARIS

110A. IVORY DIPTYCH (HEIGHT 2¾ IN.) FOURTEENTH CENTURY. SCHOOL OF THE ILE-DE-FRANCE

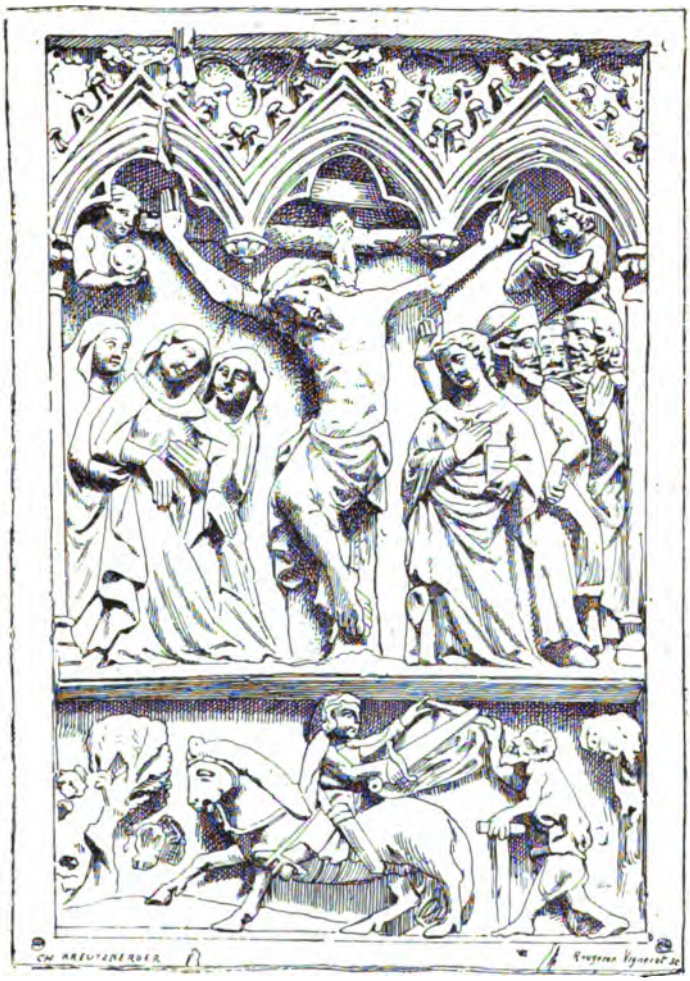
but the most famous, testify to the vigorous talent of the fourteenth and fifteenth-century image-carvers.

Flemish *ateliers*, which were kept up by the severe rules of the guilds, exercised a salutary influence upon the Burgundian craftsmen. This is more especially true of the great workshops of



111. IVORY DIPTYCH (HEIGHT 4⅜ IN.) FOURTEENTH CENTURY. SCHOOL OF PARIS

Antwerp and of Brussels, and perhaps also of those of Southern Germany. Burgundian influences reacted in their turn upon the artists of the Ile-de-France, notably in Paris (that brilliant centre of all artistic activities in the fourteenth century), and stirred them to emulation. The union of these various elements brought about the revival of the fine tradition of the thirteenth century, and towards



111A. IVORY PLAQUE (HEIGHT 6$\frac{11}{16}$ IN.) COVER OF AN EVANGELIUM. FOURTEENTH CENTURY. SCHOOL OF THE ILE-DE-FRANCE (SOISSONS)

the close of the fifteenth century paved the way for a French Renascence, which heralded that more famous movement of the sixteenth, the credit of

112. HEAD IN SILVER GILT REPOUSSÉ. HALF-LIFE SIZE. THIRTEENTH CENTURY. ATELIERS OF THE GOLDSMITH'S GUILD OF PARIS

which is usually given to the Italians, who, however, such was the infatuation of the times, contributed rather to the debasement than to the regeneration of French national art.

The remarkable sculptures that owe their origin to the *ateliers* of Antwerp are distinguished by one of the quarterings of the civic arms, a severed hand burnt in with a red-hot iron. Those of Brussels are

113. GROUP CARVED IN WOOD (HEIGHT 10¼ IN.) FIFTEENTH CENTURY. SCHOOL OF ANTWERP

branded in like fashion. The images of wood, ivory, and *vermeil*, that we figure as illustrating the art of the image-carvers from the thirteenth to the fifteenth century, show that the old tradition was still cherished in this community. Their artists were so far swayed

by iconographic convention that a certain hieratic

114. WOODEN STATUETTE, PAINTED AND GILDED (HEIGHT 19$\frac{11}{16}$ IN.)
FIFTEENTH CENTURY. SCHOOL OF BRUSSELS

sentiment is perceptible in their works; but this

115. WOODEN STATUETTE, PAINTED AND GILDED (HEIGHT 19$\frac{1}{16}$ IN.)
SIXTEENTH CENTURY. SCHOOL OF MUNICH

is never allowed to outweigh fitness of action and

expression, and their masterpieces are so instinct with taste and delicacy, composed with so much skill and executed with such freedom, that they are the admiration of modern artists.[1]

These essentially French qualities they owe, primarily, of course, to the genius of their creators, but in a scarcely inferior degree to the fostering care of the *maîtrises*, institutions which only require a certain modification by the progressive leaven of to-day, to become models for the imitation of all whose function it is to develop national art.

[1] The statuettes, diptychs, etc., in wood, ivory, and *vermeil*, or silver-gilt, figured from No. 107 to No. 115, belong to the author.

CHAPTER XII

PAINTING

THE origin of painting dates from remote antiquity, and the art had already passed through many developments before it was applied by Gothic architects to the decoration of their buildings.

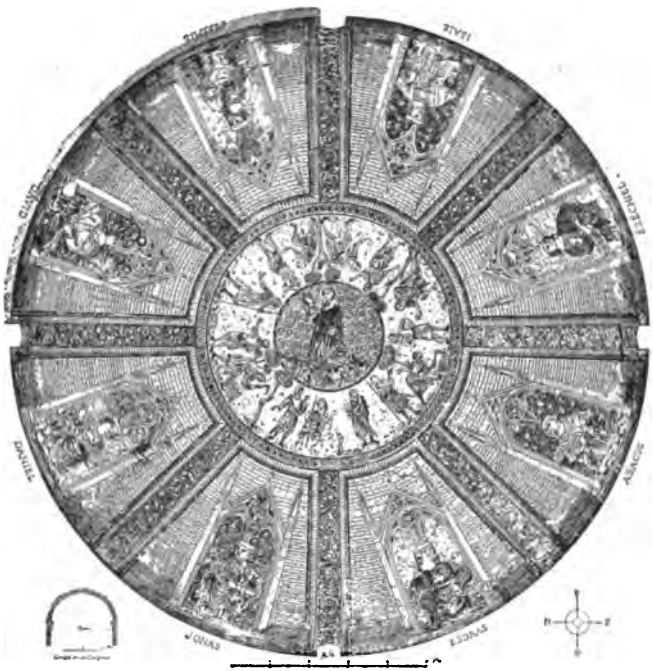
"In the thirteenth century the architectonic painting of the Middle Ages reached its apogee in France. The painted windows, the vignettes of manuscripts, and the mural decorations of this period all denote a learned and finished art, and are marked by a singular harmony of tones, and a corresponding harmony with architectural forms. It is beyond question that this art was developed in the cloister, and was a direct product of Græco-Byzantine teachings."[1]

From the archæological point of view, however, it is important to bear in mind the considerable influence exercised upon continental art by the manuscripts and miniatures of Irish monks, so early as the reign of Charlemagne.

Towards the close of the twelfth century sculpture and painting alike entered on a new phase,

[1] Viollet-le-Duc, *Dictionnaire raisonné*, vol. vii.

resulting from that process of architectural evolution we have been considering. The hieratic tradition was set aside for the direct teaching and inspiration of



116. PAINTINGS IN CAHORS CATHEDRAL. HORIZONTAL PROJECTION OF THE CUPOLA WITH FORESHORTENED FIGURES AND THEIR ARCHITECTURAL FRAMEWORK

nature. But as the mastery of the painter increased, the mural spaces available for the application of his new methods diminished rapidly, till, by the thirteenth century, the only wall surfaces left to him were those beneath the windows, and some few

triangular spaces in the vault, where the interlacing network of arches became gradually closer and closer. Finding themselves thus practically excluded from the new Gothic buildings, the painters of the day turned their attention with entire success to the decoration of ancient monuments by the new naturalistic methods. The domes of great abbey churches such as St. Front (Périgueux) offered immense bare surfaces, the concave forms of which they utilised with extraordinary skill, adorning them with compositions in which figure and ornament are so adroitly combined, that they seem to be of normal proportions, in spite of their really colossal size (Fig. 117).

Thanks to a discovery of mural paintings made in the Cathedral of Cahors in 1890, of the greatest archæological importance, we are able to verify these statements.

During the progress of certain works undertaken for the preservation of the two domes, some paintings of great interest were laid bare on the removal of several coats of whitewash from the western cupola. Traces of similar decoration were found on the eastern cupola and its pendentives, but these it was found impossible to preserve, the action of the air causing them to peel at once from the surfaces. But the western composition is intact, and though the brilliance of the colour has no doubt suffered from time, we can still appreciate the learning, vigour, and firmness of hand perceptible in the design, which is outlined in black.

This western cupola, which is ovoid, and some fifty-three feet in diameter, like that of the east, is

117. PAINTING IN CAHORS CATHEDRAL. FRAGMENT OF ONE OF THE EIGHT SECTORS OF THE CUPOLA. THE PROPHET EZEKIEL

divided by its pictorial scheme into eight sectors, separated by wide bands of boldly-designed fruits and flowers. Fig. 116 gives an exact idea of the general arrangement. Eight colossal figures of prophets, varying in height from fifteen to sixteen feet approximately, form the chief motives of the decoration. David, the prophet king, and the four great prophets: Daniel to the left of David; then in order, Jeremiah, Isaiah, and Ezekiel on the right, towards the choir of the church, and the three minor prophets — Jonah, Esdras, and Habakkuk — are painted in modulated tones, the dark outline forming a setting, on a background varying from tawny to deep red. The figures are enframed in a firmly-drawn architectural setting. This architecture is painted in gray against the masonry, the courses of which are indicated by double lines of brown upon the pale ochre of the general surface. Each prophet holds a phylactery or banderole inscribed with his name in beautiful thirteenth-century characters.

The floriated bands which divide the sectors terminate above in a circular frieze surrounding the crown of the cupola. The latter represents a starry sky, the centre painted with the apotheosis of St. Stephen, the patron of the cathedral. The frieze is painted with scenes from the trial and stoning of the Saint; the life-size figures are full of expression and grouped with great variety. In these paintings there are evident leanings towards the naturalistic evolution; and though the figures of the prophets are still hieratic in certain respects, the poses, heads, and details all point to evident research in the matter of physiognomy. This research is carried very far in

the figures of the circular frieze, where the hands have evidently been carefully studied from nature.

Technically speaking, these paintings are not frescoes. "The medium employed seems to have been egg, the white and yolk mixed, and the method

118. PAINTINGS IN CAHORS CATHEDRAL. FRAGMENT OF THE CENTRAL FRIEZE OF THE CUPOLA

very analogous to that of water-colour painting. . . . The red tones were laid over a bed of deep orange, the effect being one of extraordinary vigour and brilliance, taking into account the means at command. The use of a prepared ground was systematic, and was resorted to whenever intensity of the tones or colour effects was desired. Evident efforts in the

direction of modelling are noticeable, though these have been neutralised to a great extent by a lack of concentration in the lights, and if it were not for the thick outline in which each figure is set, there would be much in common between the methods of these paintings and those renderings of diffused light affected by our modern *plein-airistes*. The general tone is that of the simpler paintings of the thirteenth century, that is to say, of those in which no gold was used. The effect is warm and brilliant, the dominant hue orange, heightened by reds of various tints." [1]

According to the archæological records derived from various works of the historians of Le Quercy, these paintings in the west cupola of Cahors were carried out under the direction of the Bishops Raymond de Cornil, 1280-93, Sicard de Montaigu, 1294-1300, Raymond Panchelli,[2] 1300-1312, or Hugo Geraldi, 1312-16, the friend of Pope Clement V. and of Philip IV. of France, who was burnt alive at Avignon, or perhaps even of Guillaume de Labroa, 1316-24, whose residence was at Avignon, and who governed the diocese of Cahors through a procurator. From this period onwards there was no further question of decorative works, the successors of these bishops being fully occupied in maintaining the struggle against the English invaders.

It seems reasonable therefore to infer that the Cahors paintings date either from the end of the thirteenth century or the beginning of the fourteenth.

[1] From the technical notes of M. Gaïda.

[2] Raymond Panchelli, or Raymond II., who in 1303 began to build the Bridge of Valentré at Cahors.

In any case, these decorations are of very great artistic merit, and of the highest interest as an unique example of French decorative art at the finest period of the thirteenth century, when Gothic architecture had reached its apogee, and was producing masterpieces which served as models for contemporary artists, and even more notably, for those of the early fourteenth century.

That vigilant guardian of our beautiful cathedrals and historic monuments, the *Administration des Cultes*, has taken measures which do it infinite honour in this matter. No attempt has been made to restore the paintings, but all necessary steps have been taken to ensure their preservation as they stand, so as to leave intact the archæological value of these convincing witnesses to the genius of our French mediæval painters.

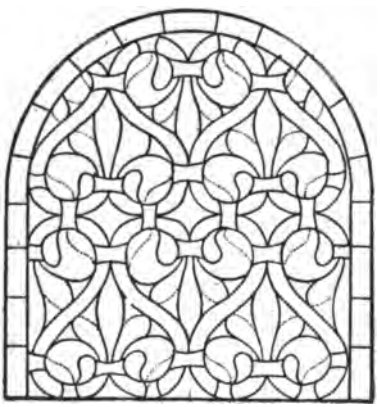
The mural spaces available for fresco decoration having been gradually suppressed, and decorative painting limited to the illumination of certain subordinate members of the structure, the mediæval artists began to apply themselves to the decoration of the great screens of glass which, with their sculptured framework of stone, now filled the entire spaces between the piers. In this new art, or rather this incarnation of the spirit of decoration under a new form, we find a fresh illustration of that supple assimilative genius which already distinguished the French artist.

"It is in the nature of the material used, that painted windows should greatly affect the character of the building they decorate. If their treatment is injudicious, the intended architectural effect may be

119, 120. PAINTED WINDOWS OF THE EARLY TWELFTH CENTURY. FROM ST. RÉMI AT RHEIMS[1]

[1] Drawings lent by M. Ed. Didron, painter upon glass.

greatly modified; if, on the other hand, they are intelligently applied, they tend to bring out the beauty of structural surroundings. . . . As is the case with all architectonic painting, stained glass demands simplicity in composition, sobriety in execution, and an avoidance of naturalistic imitation. It should aim neither at illusion nor perspective. Its scheme of colour should be frank, energetic, comprising few tints, yet producing a harmony at once sumptuous and soothing, which should compel attention, but seeks not to engross it to the detriment of the setting. Like a mural mosaic, an Eastern carpet, or the enamelled goldsmith's work of the twelfth and thirteenth centuries, a truly decorative window has no affinities with a picture, a scene or landscape gazed at from an open window, where the interest concentrates itself upon a particular point, and where the illumination is not equally diffused throughout. The fundamental law of decorative painting rests on a convention the aim of which is the satisfaction of the eye, which finds its pleasure to a far greater degree in the logical decoration of some structural or useful object than in its realisation of



121. PAINTED WINDOW OF THE TWELFTH CENTURY. CHURCH OF BONLIEU (CREUSE)

natural phenomena. Between painted windows and pictures a great gulf is fixed; and the modern school, the heir of the Italian Renascence, seeking to

122. PAINTED WINDOW OF THE THIRTEENTH CENTURY. CHARTRES CATHEDRAL

bridge it over, has seduced decorative art from the safe paths of sound judgment."[1]

The true functions of stained glass were never more admirably understood than in the twelfth

[1] *Le Vitrail à l'Exposition de* 1889, by Ed. Didron; Paris, 1890.

century. The artists of that day had a perfect comprehension of those colour-harmonies, the subdued splendour of which best accorded with the simple and vigorous forms of Romanesque

123. PAINTED WINDOW OF THE THIRTEENTH CENTURY. CHARTRES CATHEDRAL

architecture. Upon his glass of various tints the painter first outlined his figure or ornament in black. This outline he supported with a flat half-tint which supplied a rough modelling and allowed the forms expressed to make their fullest effect from a distance.

When, in the thirteenth century, the extreme austerity of religious buildings began to relax, the

124. PAINTED WINDOW OF THE THIRTEENTH CENTURY. CHURCH OF ST. GERMER, TROYES

splendour of the painted windows increased proportionately ; but the coloration, though it increased

in glow and vigour, still preserved its complete harmony with its surroundings. An additional richness is perceptible in work of the fourteenth century, at which period red glass began to be used with a certain prodigality. The system of execution remains unchanged so far; but the black outline is considerably attenuated, and the half-tone which emphasises it loses much of its importance. The figures, in place of the hieratic repose of an earlier period, affect a certain grace and animation which herald a tendency towards realistic imitation. These germs of naturalism soon bore fruit. At the close of the fourteenth century the discovery of how to obtain yellow from salts of silver, and the facility with which it could be used to warm the grayer tones of glass by the help of the muffle, caused a revolution in the art of glass-painting, and prepared the way for polychromatic enamelling. This discovery, eminently useful when discreetly applied, was to lead to regrettable exaggerations.

In the fifteenth century the figures of saints were usually drawn upon glass so tinted as to be of a soft white tone; the hair, beards, head-dresses, jewels, trimmings, and embroideries were painted in yellow. The figures stood out in bold relief against a background of blue or red, and were divided by a damasked drapery of green or purple. Vast architectural motives were introduced enframing the figures and filling up the immense window spaces of the latest period of mediæval art. The transformation was radical. It is of interest to note that the final development of the Gothic style ought logically to have brought about a recrudescence of vigour in the

125. PAINTED WINDOWS OF THE FOURTEENTH CENTURY.
CHURCH OF ST. URBAIN AT TROYES

coloration of stained glass; but the exact reverse was the case; and a marked modification took place in the glowing effects won by a diversity of strong tints. The sort of *camaïeu* which was the result obliged the painter to insist more strongly on the modelling of the figures, and to give less importance to the black outline, which was eventually suppressed altogether.

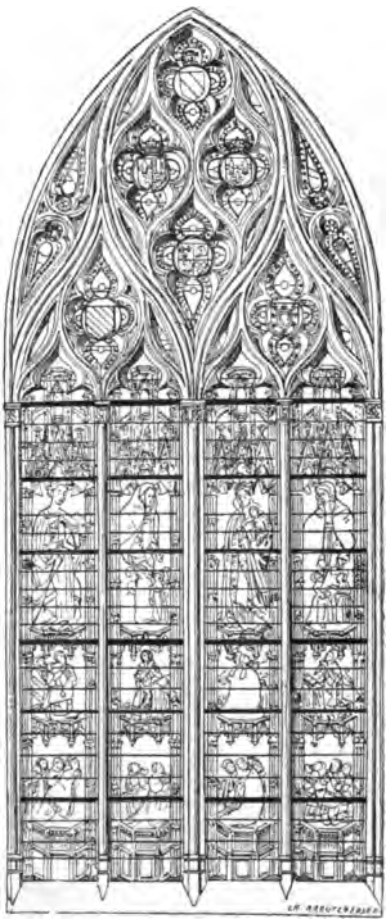
126. PAINTED GLASS OF THE FOURTEENTH CENTURY. HEAD OF ST. PETER. CATHEDRAL OF CHÂLONS-SUR-MARNE

In the sixteenth century painted glass became to a certain extent translucent pictures, in which architectural fitness was no longer respected. Composition lost its simplicity. A subject spread from panel to panel, regardless of the intervening tracery. Nevertheless, we forget the defects of this luxuriant development, and cease to wonder at its popularity, in view of that broad and vigorous execution and beauty of colour which give it a special decorative value of its own.

Enamelling is so closely allied to glass-painting as to claim a word for itself. Here, again, the decorative art of the Middle Ages was characteristic-

ally displayed, and though the process is more specially applicable to the ornamentation of goldsmith's work than to the decoration of large surfaces, it is one of the most brilliant and exquisite of the auxiliary arts.

The earliest enamels are *champlevé* and *cloisonné*. By the *champlevé* process a hollow, the edges of which outlined the figures or ornaments, was cut in the field or ground of metal for the reception of the fusible enamel; for *cloisonné*, *cloisons*, or slender walls of metal were fixed upon the field to separate flesh from draperies, and one tint generally from another. The background, the *cloisons*, and the flesh were gilt and burnished; details were defined by



127. PAINTED WINDOW OF THE FIFTEENTH CENTURY. ÉVREUX CATHEDRAL

engraved lines, so that the draperies only were enamelled.

128. ENAMEL OF THE ELEVENTH CENTURY. PLAQUE COVER OF A MS. HEIGHT $4\frac{3}{4}$ IN., WIDTH $2\frac{9}{16}$ IN.

Fig. 128 reproduces an enamel of the close of the eleventh century, in which these various characteristics may be studied. The inscriptions on either side of the cross are formed by letters vertically superposed, which read downwards.

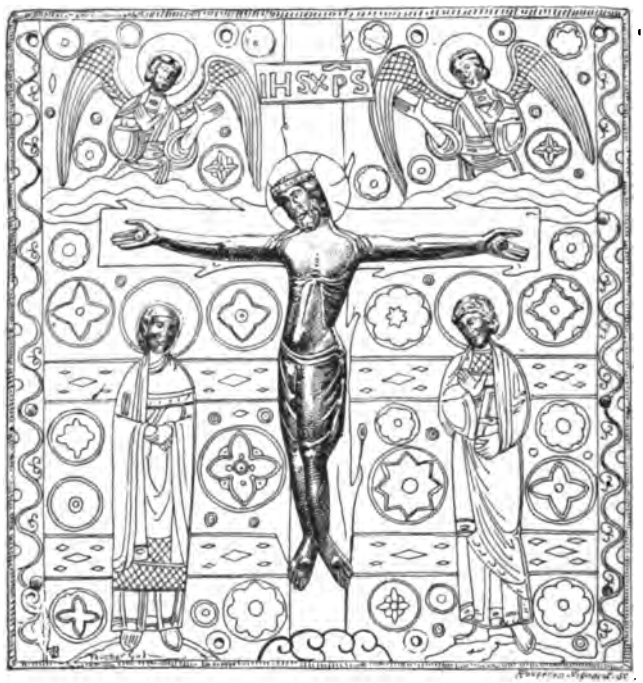
From the beginning of the thirteenth century enamels were executed by the process known as *taille d'épargne.* By this method the ground was cut out, as described above, for the reception of the various ingredients which, after undergoing the process of firing, formed the enamel; the draperies, hands, and feet of the figures which were *épargnés* (*spared* or left) were modelled and chased in very low relief; but the central figure, such as the Christ, and the heads of the subordinate personages or attendant angels, were always in high relief, vigorously modelled, and chased.

Fig. 129, a plaque forming the cover of an evangelium, is a characteristic example of this class of enamel. It dates from the early thirteenth century, and is a production of the *ateliers* founded at Limoges by the monks of Solignac.

The reliquary figured No. 130 is also a work of the Limousin enamellers. The methods employed are identical, but the carving of the figures is less delicate, indeed almost rudimentary, the modelling being replaced by hasty strokes of the graver. The lower panel of this reliquary represents the martyrdom of Thomas à Becket, Archbishop of Canterbury, the upper part his apotheosis. It is crowned by a ridge roof of two sides.

As is well known, Thomas à Becket was canonised two years after his tragic death, which had

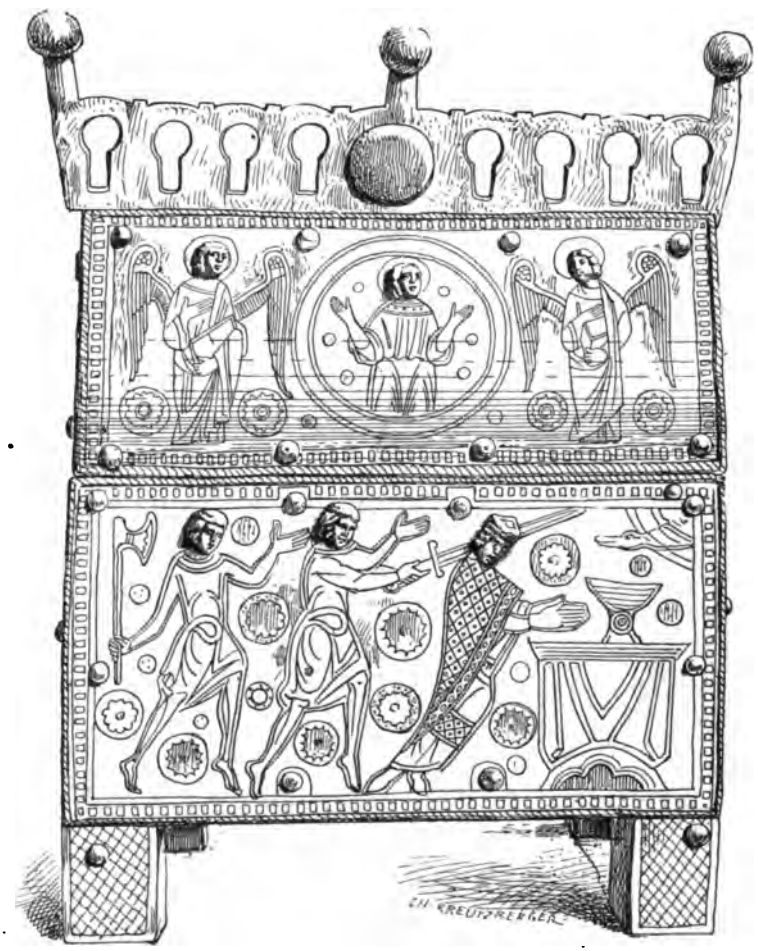
aroused general reprobation throughout Christendom. The universal feeling expressed itself at Limoges by the manufacture of a great number of reliquaries destined to receive relics of the sainted martyr.



129. ENAMEL OF THE THIRTEENTH CENTURY. PLAQUE COVER OF AN EVANGELIUM. HEIGHT $7\frac{3}{16}$ IN., WIDTH $6\frac{1}{16}$ IN.

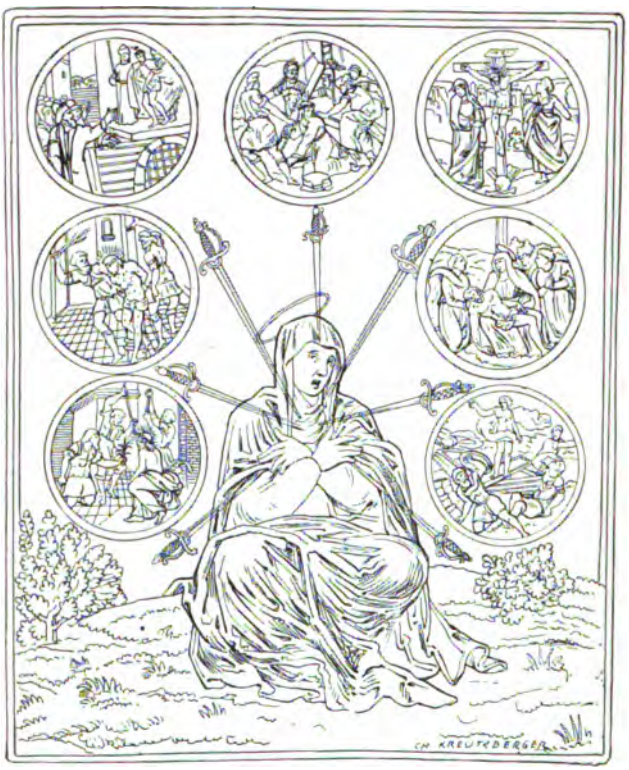
In the details of the draperies and hands of those portions of Fig. 129 which are carved in low relief, we may trace the germs of those low-relief enamels known as translucent, or to be more exact, transparent enamels. This process originated in

Italy, and was commonly employed in France, and



130. ENAMEL OF THE TWELFTH CENTURY. RELIQUARY SHRINE OF ST. THOMAS À BECKET

even in Germany throughout the fourteenth and fifteenth centuries, more especially the latter. These enamels could only be executed on gold and silver.



131. ENAMEL OF THE SIXTEENTH CENTURY. OUR LADY OF SORROWS

The method consisted in modelling the design in very low relief on the face of the plate, which was then covered with a transparent enamel of few colours. The process was a slow and difficult one;

the pieces were consequently very costly, and the demand for them proportionately restricted.

The enamellers of the sixteenth century, especially those who flourished at its beginning, were evidently inspired by these low-relief enamels to seek the same brilliant opalescence of effect by more scientific and less costly methods. But the simplification of the process degenerated into vulgarisation, and its original qualities gradually faded out. Fig. 131, representing Our Lady of Sorrows, and signed I. C. (Jehan Courteys or Courtois), gives some idea of the design, at least, of the painted enamels executed by the Limousin artists of the early sixteenth century.

Gothic architecture, more especially in its religious manifestations from the twelfth to the fifteenth century, made its prolific influence felt, not only by the structural qualities of its vast and numerous buildings, but by those various arts created, perfected, or at least developed, for their decoration. We have traced a bare outline of its activities, regretting that space fails us to make an exhaustive study of their various manifestations. The priceless fragments which illustrate these offshoots of an art essentially French are now the chief ornaments not only of French, but of all European museums. They take rank as factors of the first importance in art education, pointing the way to fresh masterpieces of French genius.

PART II

MONASTIC ARCHITECTURE

CHAPTER I

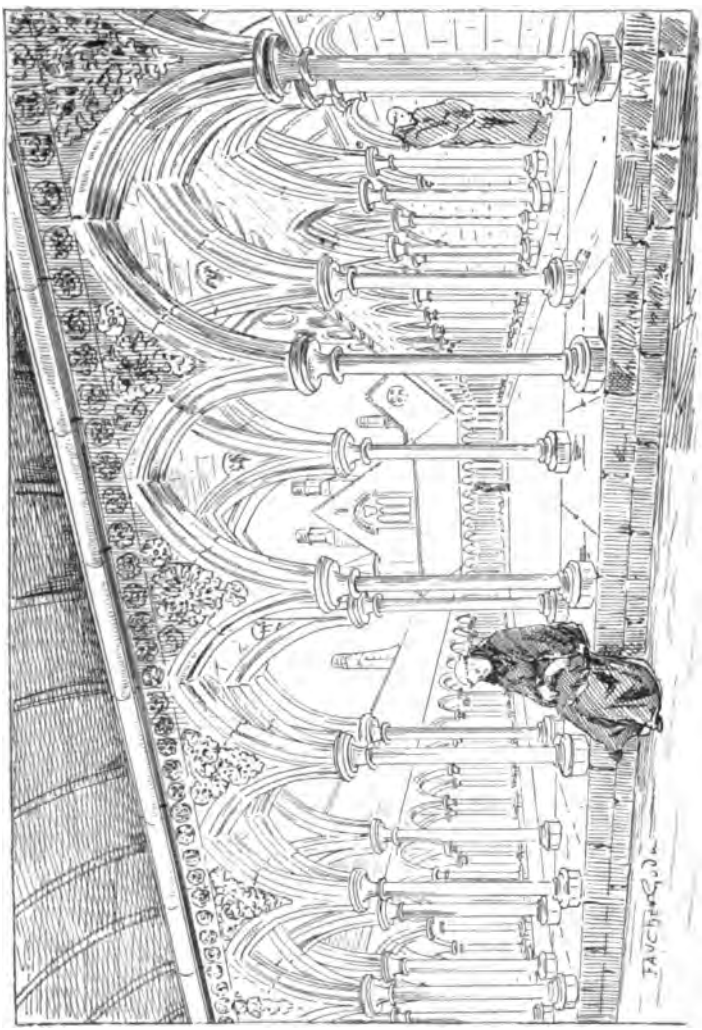
MONASTIC ARCHITECTURE: ITS ORIGIN

THE origin of monastic architecture is of no greater antiquity than the fourth century of the Christian era. The hermits and anchorites of the earliest period made their habitation in the caves and deserts of the Thebaïd; their sole monument is the record of their virtues, which have outlived any buildings they may have raised during their years of solitude. But the first Christians who banded themselves together under a common rule, and discarded anchoritism for the cenobitic life, marked their worldly pilgrimage by monuments, traces of which are still to be found in historic records or fragmentary remains.

The history of abbey churches is identical with that of cathedrals.[1] The architectural evolutions and transformations which succeeded each other in the twelfth and thirteenth centuries manifested themselves in both. Like the cathedrals, the abbey churches were the creation of monkish architects, and were carried out either under their immediate direction or that of their pupils.

But a kindred field of study offers itself in the

[1] See Part I., "Religious Architecture."



132. ABBEY OF MONT ST. MICHEL. CLOISTER (THIRTEENTH CENTURY. FROM A DRAWING BY ED. CORROYER)

abbeys themselves, their organisation and adaptation to the domestic needs of their be-frocked inmates.

Monastic institutions date from the Roman era. The first abbeys were those established in France in the fourth century, by St. Hilary of Poitiers and St. Martin of Tours. These religious associations or corporations, which eventually became so powerful, by reason not only of their numbers, but of the spirit which animated them, must be reckoned as among the most beneficent forces of the Middle Ages. Even from the philosophical side alone of the religious rule under which they flourished, by virtue of which enlightened men wielded supreme power, they were admirable institutions.

To instance one among many, the so-called *Rule* of St. Benedict is in itself a monument, the basis of which is *discipline*, the coping-stone *labour*. These are principles of undying excellence, for they are the expression of eternal truths. And from them our modern economists, who so justly exalt the system of co-operation, might even in these latter days draw inspiration as useful and as fruitful as that by which men were guided in the days of Benedict.

Three great intellectual centres shed their light on the first centuries of the Middle Ages. These were Lérins, Ireland, and Monte Casino. Their most brilliant time was from the fourth century to the reign of Charlemagne, by which period they may be said to have prepared the way for successive evolutions of human knowledge, by assiduous cultivation of the sciences and arts, more especially architecture, in accordance with the immutable laws of development and progress.

Lérins.—St. Honoratus and his companions, when they landed in the archipelago, built on the principal island a chapel surrounded by the cells and buildings necessary for a confraternity. This took place about 375-390 A.D. The members of the budding community were learned monks, who had accepted the religious rule which had now become their law. They instructed neophytes sent them from the mainland, and their reputation grew so rapidly that Lérins soon took rank as a school of theology, a seminary or nursery whence the mediæval church chose the bishops and abbots best fitted to govern her.

The school of Lérins was so esteemed for learning that it took an active part in the great Pelagian controversy which agitated Christendom at the time,[1] and zealously advocated the doctrines of semi-pelagianism, but this tendency was finally subdued by St. Vincent of Lérins, whose ideas were more orthodox. The theological teaching of Lérins seems to have dominated, or at least to have directed religious opinion in Gaul down to the sixth century.

Ireland.—So early as the sixth century Ireland was the centre of art and science in the West. The Irish monks had followed the oriental tradition as modified by its passage through Scandinavia; they exercised a considerable influence on continental art by their manuscripts and illuminations, and prepared the way for the renascence of the days of Charle-

[1] *Pelagianism* was the heresy of the monk Pelagius, who flourished in the fourth century. He contested the doctrine of original sin, as imputed to all mankind from the fall of Adam, and taught that the grace of God is accorded to us in proportion to our merits. *Semi-pelagianism* taught that man may begin the work of his own amelioration, but cannot complete it without Divine help.

magne, to which such importance was given by the monuments of the Romanesque movement.

St. Columba was a monk of the seminary of Clonard in Ireland, whence towards the close of the sixth century he passed over to the continent, founding the Abbeys of Luxeuil and Fontaine, near Besançon, and later that of Bobbio, in Italy, where he died in 615. His principal work was the *Rule* prescribed to the Irish monks who had accompanied him, and those who took the vows of the monasteries he had founded. In this famous work he did not merely enjoin that love of God and of the brethren on which his *Rule* is based; he demonstrated the utility and beauty of his maxims, which he built upon Scriptural precepts, and upon fundamental principles of morality. The school of Luxeuil became one of the most famous of the seventh century, and, like that of Lérins, the nursery of learned doctors and famous prelates.

Monte Casino.—In the sixth century St. Benedict preached Christianity in the south of Italy, where, in spite of Imperial edicts, Paganism still prevailed among the masses. He built a chapel in honour of St. John the Baptist on the ruins of a temple of Apollo, and afterwards founded a monastery to which he gave his *Rule* in 529. This was the cradle of the great Benedictine order.

The number of St. Benedict's disciples grew apace. He had imposed on them, together with the voluntary obedience and subordination which constitute *discipline*, those prescriptions of his *Rule*, which demanded the partition of time between prayer and work. He proceeded to make a practical

application of these principles at Monte Casino, the buildings of which were raised by himself and his companions. Barren lands were reclaimed and transformed into gardens for the community; mills, bakehouses, and workshops for the manufacture of all the necessaries of life were constructed in the abbey precincts, with a view to rendering the confraternity self-supporting; auxiliary buildings were reserved for the reception of the poor and of travellers. These, however, were so disposed that strangers were kept outside the main structure, which was reserved exclusively for the religious body.

The great merit of St. Benedict, apart from his philosophical eminence, lies in his comprehension of the doctrine of labour. He was perhaps the first to teach that useful and intelligent work is one of the conditions, if not indeed the sole condition, of that moral perfection to which his followers were taught to aspire. If he had no further title to fame, this alone should ensure his immortality.

"The apostles and first bishops were the natural guides of those who were appointed to build the basilicas in which the faithful met for worship. When at a later stage they carried the faith to distant provinces of the empire, they alone were able to indicate or to mark out with their own hands the lines on which buildings fitted for the new worship should be raised. . . . St. Martin superintended the construction of the oratory of one of the first Gallic monasteries at Ligujé, and later of that of Marmoutier, near Tours, on the banks of the Loire. In the reign of Childebert, St. Germain directed the building of the Abbey of St. Vincent—afterwards

re-named St. Germain-des-Près — in Paris. St. Benedict soon added to his *Rule* a decree providing for the teaching and study of architecture, painting, mosaic, sculpture, and all branches of art; and it became one of the most important duties of abbots, priors, and deans to make designs for the churches and auxiliary buildings of the communities they ruled. From the early centuries of the Christian era down to the thirteenth century, therefore, architecture was practised only by the clergy, and came to be regarded as a sacred science. The most ancient plans now extant—those of St. Gall and of Canterbury—were traced by the monks Eigenhard and Edwin. . . . During the eleventh and twelfth centuries there rose throughout Christendom admirable buildings due to the art and industry of the monks, who, bringing to bear upon the work their own researches, and the experience of past generations, received a fresh stimulus to exertion in this age of universal regeneration, by the enthusiasm with which their kings inspired them for the vast ruins of the ninth century."[1]

From the earliest centuries of the Christian era communities both male and female had been formed with the object of living together under a religious rule; but it seems evident that the greater number of monasteries owed their fame and wealth, if not their actual origin, to the reputation of their relics. These attracted the multitude. Pilgrimages became so frequent, and pilgrims so numerous, that it was found necessary to build hospices, or night-refuges, in various towns on their routes. A confraternity

[1] Albert Lenoir, *L'Architecture Monastique;* Paris, 1856.

of the *Pilgrims of St. Michael* was formed in the beginning of the thirteenth century in Paris, where the confraternity of *St. James of Pilgrims* had already built its chapel and hospital in the Rue St. Denis, near the city gate.

From the seventh to the ninth century important abbeys flourished in nearly all the provinces now comprised in modern France. Later, under the immediate successors of Charlemagne, great monasteries were founded in all the countries which made up his dominions. Charlemagne himself had greatly contributed to the development of religious institutions by his reliance on the bishops, and more especially the monks who represented progress, supported his policy, and enforced his civilising mission. But after his death the study of art and science declined so rapidly that a radical reform became necessary in the tenth century, a reform which seems to have had its birth in the Benedictine Abbey of Cluny, established in Burgundy about the year 930.

From this hasty sketch of monastic organisation some idea may be gathered of the importance of religious institutions in the eleventh and twelfth centuries, and of the immense services they had rendered the State by diligent and useful toil, among the chief fruits of which must be reckoned the revival of agriculture, and the development of the sciences and arts, more especially architecture.

Monastic architecture exercised a great and decisive influence upon national art by its vast religious buildings, the precursors of our great cathedrals.

Until the middle of the twelfth century science, letters, art, wealth, and above all, intelligence—in other words, omnipotence on earth — were the monopoly of religious bodies. It is bare historic justice to remember that the Middle Ages derived their chief title to fame, and all their intellectual enlightenment, from the abbeys, and that the great religious houses were in fact schools, the educational influence of which was immense. It must be borne in mind that if the great cathedrals of the twelfth and thirteenth centuries were not actually constructed by the monks, their architects were nevertheless the pupils of monks, and that it was in the abbey schools, so generously opened to all, that they imbibed the first principles of the art they afterwards turned to such marvellous account.

The study of architecture in particular was not merely theoretical. It was demonstrated by the monks in their important monastic buildings, the crowning point of which was the abbey church, a structure often larger and more ornate than contemporary cathedrals.

On the plan commonly adopted, the cloister, a spreading lawn adorned with plants, adjoined the church on the north, and sometimes on the south. An open arcade surrounded the cloister, by means of which communication with all the necessary domestic offices was provided. Of these the principal were: the refectory, generally a fine vaulted hall, close to the kitchens; the *chapter-house*, a building attached to the church, the upper story of which was the dormitory of the monks; the vaulted cellars and granaries, above which were the lodgings

provided for strangers; the storerooms were connected with stables, cattle-stalls, and various outdoor offices, often of great extent. All these dependencies for the service of the community were kept strictly separate one from another, thus all necessary measures were taken to provide for the needs and duties of hospitality without any disturbance of the religious routine.

The abbeys of the Romanesque period were largely used as models in their day. They were modified by lay architects or monkish builders who, however, were careful to abate nothing of their perfection; they partook of the developments which marked the middle of the thirteenth century, and were subjected to that progressive transformation, the great feature of which was the adoption of the Angevin intersecting arch, the distinguishing characteristic of Gothic architecture.

CHAPTER II

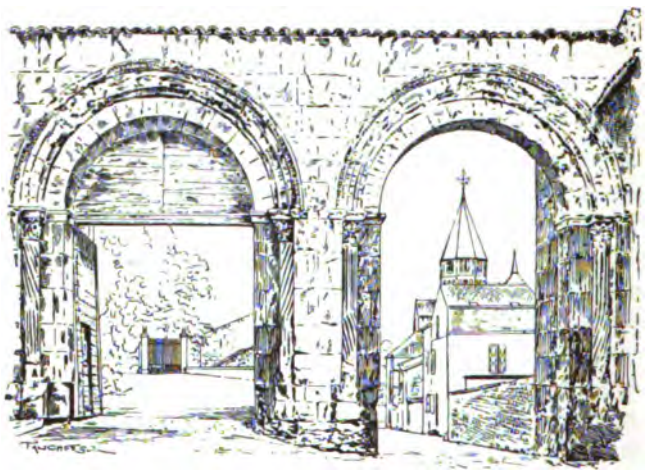
THE ABBEY OF CLUNY—CISTERCIAN ABBEYS

THE Benedictines, the Cistercians, the Augustinians, the Premonstrants, and notably the congregation of Cluny were all energetic builders, and the vast and magnificent structures of their creation were reckoned the most perfect achievements of their day. The study of their buildings — the church, the dwelling-places of abbot and monks, with all their dependencies—is most instructive. It fills us with admiration for the learning and judgment of the monkish builders who, accepting the limitations imposed by climate, locality, material, the numbers of their inmates, and the resources of their order, turned them all to account as elements of beauty and harmony.

The architects of the first abbeys undoubtedly adopted the constructive methods of the period, and built in the Latin, Roman, or Gallo-Roman manner. The double gateway of the Abbey of Cluny, the architect of which was probably Gauzon, sometime Abbot of Beaune, who laid the foundations of the famous monastery, is an interesting proof of this assertion. But monastic architecture underwent the same modifications to which ecclesiastical architecture

had been subjected under those various influences which manifested themselves in the glorious monuments built from the eleventh to the thirteenth century, when Gothic architecture reached its apogee.

The abbots of the many abbeys of various orders built throughout this period were too enlightened to



133. ABBEY OF CLUNY. GATEWAY

disregard the progress of their contemporaries, and they promptly applied the new principles to the construction or embellishment of their monasteries.

The Abbey of Cluny was founded in 909 by William, Duke of Aquitaine, and declared independent by Pope John XI., who in 932 confirmed the duke's charter. Its rapid development and growth in power is sufficiently explained by the social and political circumstances of its origin. At the begin-

ning of the tenth century Norman invasions and feudal excesses had destroyed the work of Charlemagne. Western Christendom seemed to lapse into barbarism after the havoc made by the Saracens and Northern pirates among towns and monasteries. Civil society and religious institutions had alike fallen into the decay born of a conflict of rights and a contempt of all authority.

Cluny rapidly became a centre round which all the intelligence which had escaped submersion in the chaos of the ninth century grouped itself. Its school soon attained a distinction equal to that which marked the first great seats of learning at the beginning of the Middle Ages. Thanks to the *Rule* of St. Benedict, on which the Benedictines of Cluny had grounded their community, the abbey developed greatly in extent and wealth. Throughout the eleventh and twelfth centuries it seems to have been the prolific nursery-ground whence Europe drew not only teachers for other monastic schools, but specialists in every branch of science and of letters, notably architects, who aided in the expansion of Cluny and its dependencies, and further practically contributed to the construction of the numerous abbeys founded by the Benedictines throughout Western Europe, and even in the East, the cradle of Christianity.

While this struggle of intelligence against ignorance was in progress, a social revolution had accomplished itself by the enfranchisement of the communes, a development of the utmost importance in its relation to science, art, and material existence, in a word, to the whole social system.

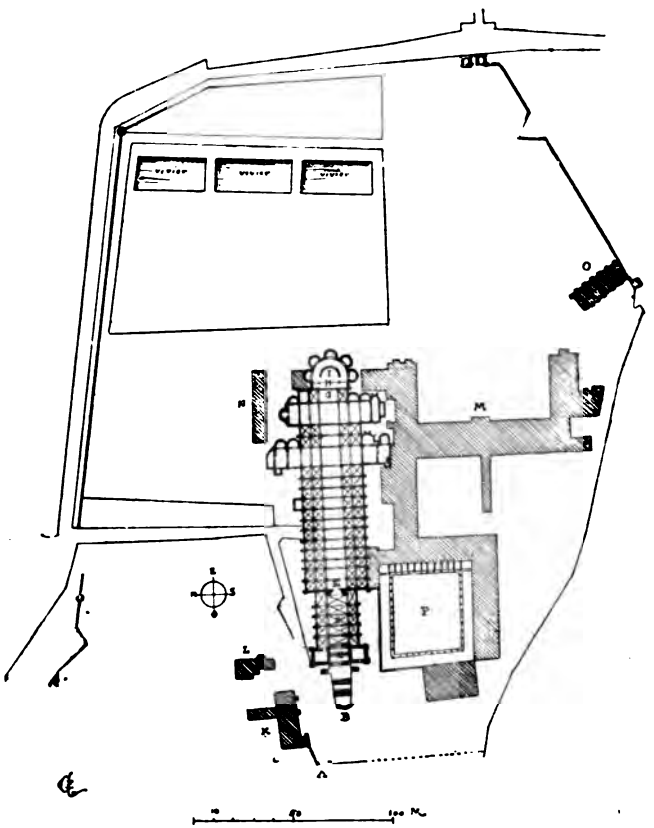
Architecture, that faithful expression of the social state which had its origin in Pagan civilisation, became Christianised by its culture in the abbeys, and in its new development rose to that pre-eminence the marvels of which we have already studied in the first part of this work. But though the successes achieved by the architecture of this period were rapid and dazzling, its decadence was profound, for it was induced by too radical an emancipation from antique principles, the superiority of which had been established in the first centuries of the Middle Ages.

The Abbey of Cluny soon became too small for the increasing number of monks. St. Hugh undertook its reconstruction in the closing years of the eleventh century, and the monk Gauzon of Cluny began the works in 1089 on a much more extensive plan, indeed on a scale so magnificent that the church of the new abbey was esteemed the first in importance among Western buildings of the kind.

The plan (Fig. 134) shows the arrangement of the abbey at the close of the eleventh century, when the monastic buildings had been reconstructed some time previously. The ancient church was intact; the choir had been begun in the time of St. Hugh, but the building had not been consecrated till 1131. The chapel which precedes it on the west was completed so late as 1228 by Roland I., twentieth abbot of Cluny.

At A on the plan stood the entrance, the Gallo-Roman gateway which still exists. At B, in front of the church, a flight of steps led up to a square platform, from which rose a stone cross; a flight of broad steps gave access to the chapel entrance at C,

an open space between two square towers. The northern tower was built to receive the archives; that



134. ABBEY OF CLUNY. PLAN

on the south was known as the Tower of Justice. The ante-church or narthex at D seems to have been set apart for strangers and penitents, who were not

allowed to enter the main building. Their place of worship was distinct from the abbey church, just as their lodging was separated from the buildings reserved for the brotherhood, who were permitted no intercourse with the outer world. At E was the door of the abbey church, which was only opened to admit some great personage whose exceptional privilege it was to enter the sanctuary.

At Cluny, as at Vézelay, one of the dependencies of Cluny, the Galilee, which is found in all Benedictine abbeys, was built with aisles and towers on the same scale as an ordinary church. It communicated with the buildings set apart for guests over the storehouses of the abbey to the west of the cloister at F on the plan. From the Galilee access to the abbey church was obtained at E, by means of a single doorway, which from descriptions seems to have resembled the great door of the monastery church at Moissac in arrangement and decoration.

The special characteristic of the Abbey Church of Cluny is its double transept, an arrangement we shall find reproduced in the great abbey churches of England, notably at Lincoln. According to a description written in the last century, the Abbey Church of Cluny was 410 feet long. It was built in the form of an archiepiscopal cross, and had two transepts: the first nearly 200 feet long by 30 feet wide; the second, 110 feet long and wider than the first. The basilica, 110 feet in width, was divided into five aisles, with semi-circular vaults supported on sixty-eight piers. Over three hundred narrow round-headed windows, high up the wall, transmitted the dim light that favours meditation. The high altar was

placed immediately beyond the second transept at

135. ABBEY OF CLUNY. INTERIOR OF NARTHEX, WITH DOOR LEADING INTO ABBEY CHURCH

G, and the retro-choir and altar at H. The choir,

which had two rood screens, occupied about a third of the nave. It contained two hundred and twenty-five stalls for the monks, and in the fifteenth century was hung with magnificent tapestries. A number of altars dedicated to various saints were placed against the screens and the piers of nave and side aisles. At a later period chapels were constructed along the aisles and on the eastern sides of the two transepts.

Above the principal transept rose three towers roofed with slate; the central, or lantern tower was known as the lamp tower, because from the vaults of the crossing below it were suspended lamps, or coronas of lights which were kept burning day and night over the high altar.

To the south of the abbey, at F on the plan, was a great enclosure, surrounded by a cloister, some vestiges of which still remain. K and L mark the site of the abbatial buildings which were restored in the fifteenth and sixteenth centuries; M and N the structures raised last century over the primitive foundations. To the east lay the gardens and the great fish-ponds which still exist, with portions of their enclosures. Another surviving fragment is a building of the thirteenth century, said to be the bakery, and marked O on the plan.

The abbots who succeeded St. Hugh were unable to preserve the primitive conditions of the foundation. The excessive luxury resulting from over-prosperity brought about demoralisation, and by the end of the eleventh century discord was rife at Cluny.

Peter the Venerable, who was elected abbot in 1112, restored order for a time, and established a chapter general, consisting of two hundred priors

and over twelve hundred other monks. In 1158, at the time of Peter's death, these numbers had increased by more than four hundred, and the order had founded monasteries in the Holy Land and at Constantinople.

The Abbey of Citeaux. — The reform of the Benedictine orders became a pressing necessity, and St. Robert, Abbot of Solesmes, entered upon the task about 1098. St. Bernard continued it, after having quitted his abbey, with twenty-one monks of the order, to take refuge in the forest of Citeaux, given him by Don Reynard, Vicomte of Beaune. His main achievement was reorganisation of such a nature as to deal effectually with the decay of primitive simplicity throughout the order, which had completely lost touch with monastic sentiment.

"Frequent intercourse with the outside world had demoralised the monks, who attracted within their cloister walls crowds of sightseers, guests, and pilgrims. The monasteries which, down to the eleventh century, were either built in the towns, or had become centres of population in consequence of the Norman and Saracen invasions, retained their character of religious seclusion only for a certain number of monks, who devoted themselves to intellectual labours. Besides which, the brethren had become feudal lords, holding jurisdiction side by side with the bishops, and St. Germain-des-Près, St. Denis, St. Martin, Vendôme, and Moissac owned no over-lordships but that of the Pope. Hence arose temporal cares, disputes, and even armed conflicts, among them. The greed and vanity of the abbots at least, if not of their monks, made itself

felt even in religious worship, and in the buildings consecrated thereto." [1]

St. Bernard, in an address to the monks of his day, reproves their degeneracy, and censures the exaggerated dimensions of the abbey churches, the splendour of their ornamentation, and the luxury of the abbots. O vanity of vanities! he exclaims, and folly great as vanity! The Church is bedecked in her walls, but naked in her poor! She overlays her stones with gold, and leaves her children without raiment! The curious are given distractions, and the miserable lack bread! It was to suppress such abuses that the Cistercian order was founded by St. Robert and St. Bernard, and also to put an end to the disputes arising from ecclesiastical jurisdiction by making the new abbeys dependencies of the bishoprics. They were to be built in solitary places, "and to nourish their inmates by agriculture. It was forbidden to found them over the tombs of saints, for fear of attracting pilgrims, who would bring worldly distractions in their train. The buildings themselves were to be solid, and built of good free-stone, but without any sort of extraneous ornament; the only towers allowed were small belfries, sometimes of stone, but more usually of wood." [2]

The Cistercian order was founded in 1119, and St. Robert imposed the *Rule* of St. Benedict in its primitive severity. To mark his separation from the degenerate Benedictines, whose dress was black, he gave his monks a brown habit. After determining their religious duties he gave minute

[1] Anthyme St. Paul, *Histoire Monumentale de la France.*
[2] *Ibid.*

instructions as to the arrangement of the buildings. The condition chiefly insisted upon was that the site of the monastery should be of such extent and so ordered that the necessaries of life could be provided within its precincts. Thus all causes of distraction through communication with the outside world were removed. The monasteries, whenever possible, were to be built beside a stream or river; they were to contain, independently of the claustral buildings, the church and the abbot's dwelling, which was outside the principal enclosure, a mill, a bakehouse, and workshops for the manufacture of all things requisite to the community, besides gardens for the use and pleasure of the monks.

The Abbey of Clairvaux was an embodiment of the reforms brought about by St. Robert, and later by St. Bernard. The general arrangement and the details of service were almost identical with those of Citeaux, just as Citeaux itself had been modelled upon Cluny in all respects, save that a severe observance of the primitive Benedictine rule was insisted upon in the disposition of the later foundation. All superfluities were proscribed, and the rules which enjoined absolute seclusion as a means towards moral perfection were sternly enforced.

The result is undoubtedly interesting as a religious revival; but we may be permitted to regret that the intellectual impetus given to art progress by the great Benedictine lords spiritual of Cluny should have been checked by the frigid utilitarianism to which architecture—then an epitome of all the arts —was reduced by the purists of Citeaux in its application to the monasteries of the reform.

The Cistercian monuments are not, however, wanting in interest.

Of Clairvaux and Citeaux little remains but fragments embedded in a mass of modern buildings, for the most part restorations of the last century. As records these are less to be relied upon than the historical and archæological documents which guided Viollet-le-Duc in his graphic reconstruction of famous Cistercian abbeys, an essay not to be bettered as a piece of lucid demonstration (see his *Dictionary*, vol. i. pp. 263-271).

CHAPTER III

ABBEYS AND CARTHUSIAN MONASTERIES

IN the eleventh century a large number of monasteries had been built throughout Western Europe by monks of various orders, in imitation of the great monastic schools of Lérins, Ireland, and Monte Casino. Among the famous abbeys of this period may be mentioned "Vézelay and Fécamp, sometime convents for women, afterwards converted into abbeys for men; St. Nicaise, at Rheims; Nogent-sous-Coucy, in Picardy; Anchin and Annouain, in Artois; St. Étienne, at Caen; St. Pierre-sur-Dives, Le Bec, Conches, Cerisy-la-Forêt,[1] and Lessay, in Normandy; La Trinité, at Vendôme; Beaulieu, near Loches; Montierneuf, at Poitiers, etc." [2]

The Abbeys of Fulde, in Hesse, and of Corvey, in Westphalia, the latter founded by Benedictine monks from the Abbey of Corbie, in Picardy, were in their day the chief centres of learning in Germany.

In England St. Alban's Abbey, in Hertfordshire, was built in 1077 by a disciple of Lanfranc, the illustrious abbot of the famous Abbey of Le Bec, in

[1] *L'Architecture Romane*, by Ed. Corroyer, chap. iii. part ii.

[2] Anthyme St. Paul, *Histoire Monumentale de la France.*

Normandy. A large number of monasteries were

136. ABBEY OF ST. ÉTIENNE AT CAEN. FAÇADE

founded later on by various orders, notably the Benedictines — Croyland, Malmesbury, Bury St. Edmund's, Peterborough, Salisbury, Wimborne, Wearmouth, Westminster, etc., not to mention the abbeys and priories which had existed in Ireland from the sixth century.

The mother abbey of Citeaux gave birth to four daughters—Clairvaux, Pontigny, Morimond, and La Ferté.

The importance of Clairvaux was much increased in the first years of the twelfth century by the fame of her abbot, St. Bernard, that most brilliant embodiment of mediæval monasticism. His influence was immense, not alone in his character of reformer and founder of an important order, but as a statesman whom fortune persistently favoured in all enterprises tending to the increase of his great reputation.

St. Bernard distinguished himself in the theological controversies of his century at the Council of Sens in 1140, and in successful polemical disputations with Abélard, the famous advocate of free will, and other heterodox philosophers who heralded the Reformation of the sixteenth century. Somewhat later he took an active part in promoting the hapless second Crusade under Louis VII., and in 1147, a few years before his death, he entered vigorously into the Manichæan controversy as a strenuous opponent of the heresy which was then agitating the public mind and preparing the way for the schism which, at the beginning of the thirteenth century, brought about the terrible war of the Albigenses, and steeped Southern France in blood.

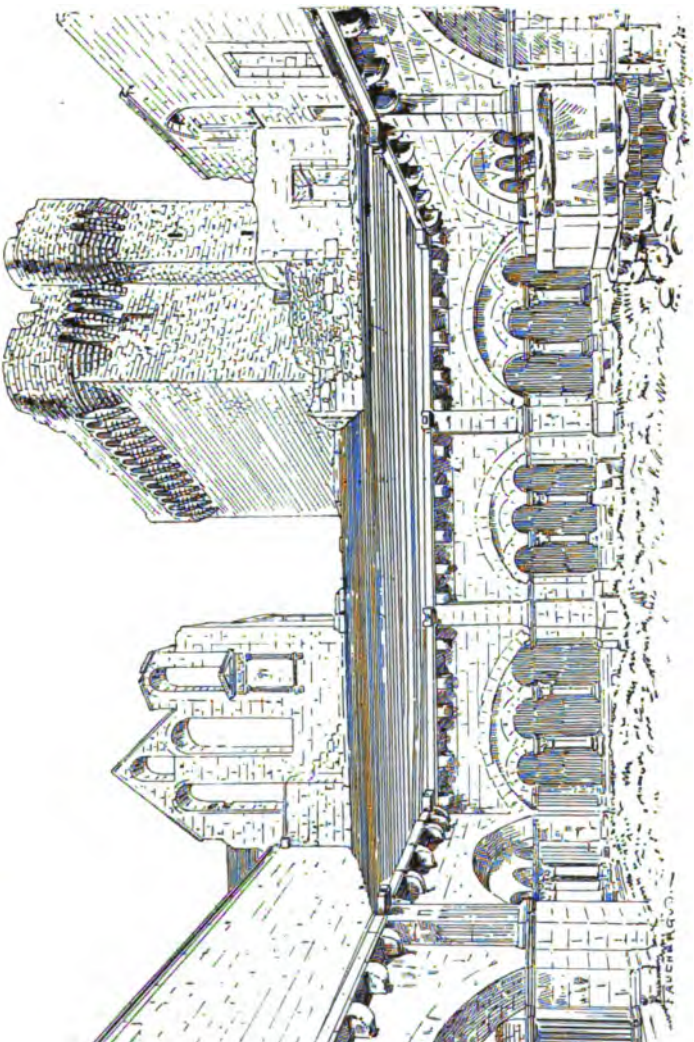
The monastic fame of St. Bernard was established

not only by the searching reforms he instituted at Clairvaux among the seceding monks of Cluny and Solesmes, but by the success of the Cistercian colonies he planted in Italy, Spain, Sweden, and Denmark, to the number of seventy-two, according to his historians.

During his lifetime the poor hermitage of the *Vallée d'Absinthe* (which name he changed to Claire-

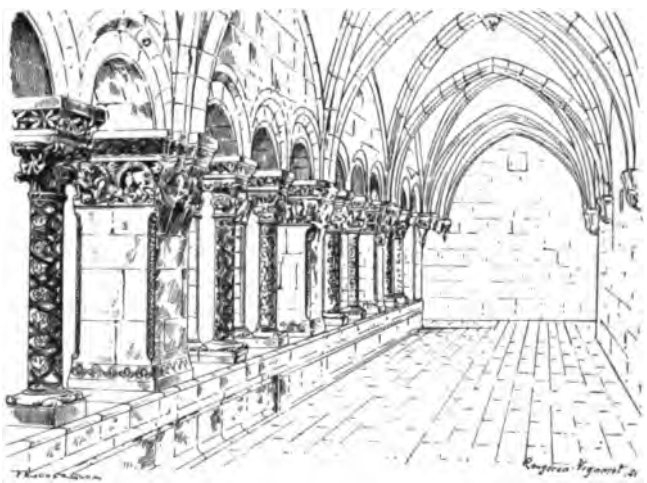
137. ST. ALBAN'S ABBEY (ENGLAND)

Vallée, Clairvaux) had become a vast feudal settlement of many farms and holdings, rich enough to support more than seven hundred monks. The monastery was surrounded by walls more than half a league in extent, and the abbot's domicile had become a seignorial mansion. As the fount of the order, and mother of all the auxiliary houses, Clairvaux was supreme over a hundred and sixty monasteries in France and abroad. Fifty years after the death of St. Bernard the importance of the order



138. ABBEY OF MONTMAJOUR (PROVENCE). CLOISTERS

had become colossal. During the thirteenth century, and from that time onwards, the Cistercian or Bernardine monks built immense abbeys, and decorated them with royal magnificence. Their establishments contained churches equal in dimension to the largest cathedrals of the period, abbatial

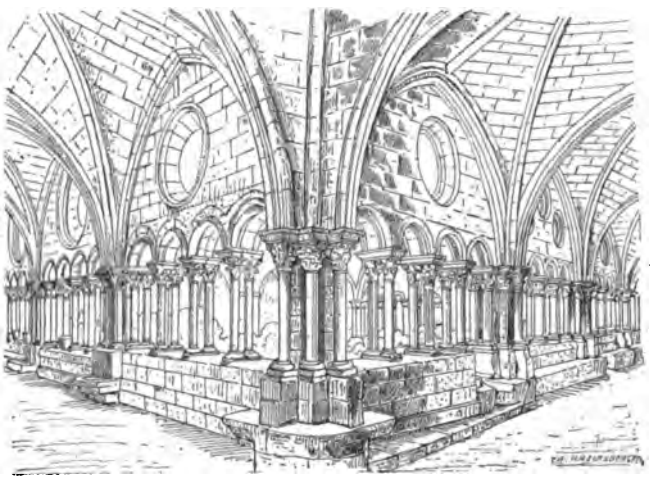


139. CHURCH AT ELNE IN ROUSSILLON. CLOISTERS

dwellings adorned with paintings, and boasting oratories which, as at Chaâlis, were *Stes. Chapelles* as splendid as that of St. Louis in Paris. The very cellars held works of art in the shape of huge casks elaborately carved.

Thus, by a strange recurrence of conditions, the settlements founded on a basis of the most rigorous austerity by the ascetics who had fled from the splendours of Solesmes and Cluny to the forest,

became in their turn vaster, richer, and more sumptuous than those the magnificence of which they existed to rebuke. With this difference, however: the ruin brought about by the luxury of the Cistercian establishment was so complete that nothing of their innumerable monasteries was spared by



140. ABBEY OF FONTFROIDE (LANGUEDOC). CLOISTERS

social revolution but a few archæologic fragments and historic memories.

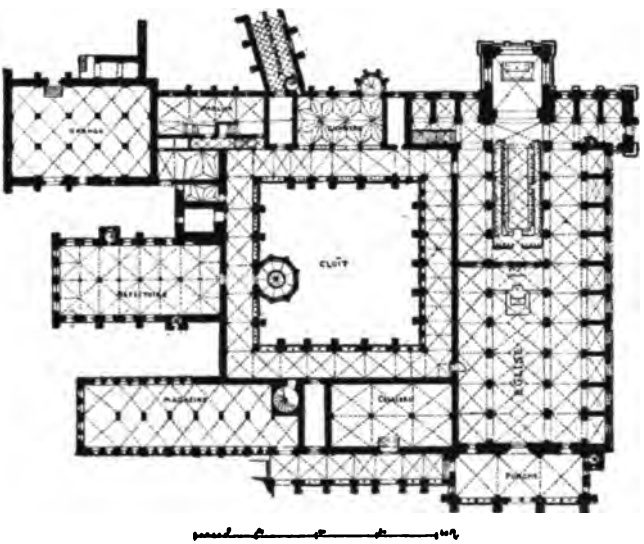
The influence of the Cistercian foundation extended to various countries of Europe. It was manifested in Spain, at the great Abbey of Alcobaco, in Estramadura, said to have been built by monkish envoys of St. Bernard; in Sicily, in the rich architectural detail of the Abbey of Monreale; and in Germany, in the foundation of such abbeys as those of Altenberg in Westphalia, and Maulbronn in

Wurtemberg. In 1133 Everard, Count of Berg, invited monks of Citeaux to settle in his dominions, and in 1145 they founded a magnificent abbey on the banks of the Dheen, which was held by the Cistercian order down to the period of the Revolution, when it shared the fate of other religious houses.

The Cistercian Abbey of Maulbronn is the best preserved of those which owed their origin to St. Bernard throughout the twelfth and thirteenth centuries. The abbey church, the cloister, the refectory, the chapter-house, the cellars, the store-rooms, the barns, and the abbot's lodging, the latter united to the other buildings by a covered gallery, still exist in their original condition. More manifestly even than Altenberg does the Abbey of Maulbronn prove that simplicity marked the proceedings of the Benedictines during the first years of the twelfth century, under the rule or influence of St. Bernard. From this period onward Cistercian brotherhoods multiplied with great rapidity in the provinces which were to form modern France.

In the Ile-de-France the ruins of Ourscamp, near Noyon, of Chaâlis, near Senlis, of Longpont and of Vaux-de-Cernay, near Paris, bear witness to the monumental grandeur of once famous and important abbeys. The monasteries and priories of the twelfth century are numerous in Provence; we may name Sénanque, Silvacane, Thoronet, and Montmajour, near Arles, at the extremity of the valley of Les Baux. Among the abbeys founded in the thirteenth century were Royaumont, in the Ile-de-France; Vaucelles, near Cambrai; Preuilly-en-Brie; La Trappe, in Le

Perche; Breuil-Benoît, Mortemer, and Bonport, in Normandy; Boschaud, in Périgord; l'Escale-Dieu, in Bigorre; Les Feuillants, Nizors, and Bonnefont, in Comminges; Granselve and Baulbonne, near Toulouse; Floran, Valmagne, and Fontfroide, in Languedoc; Fontenay, in Burgundy, etc.

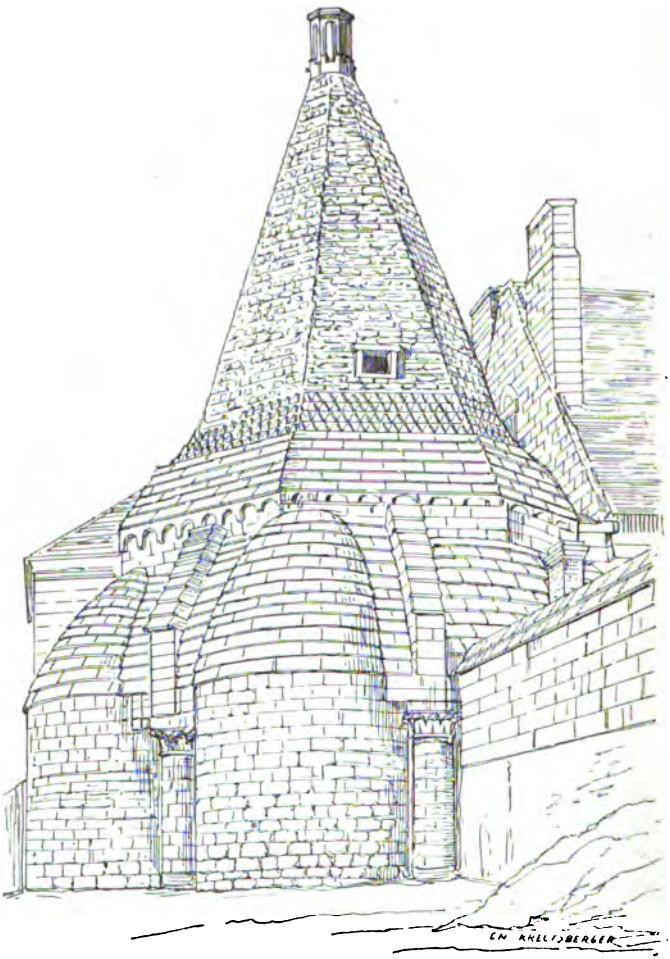


141. CISTERCIAN ABBEY OF MAULBRONN (WURTEMBERG). PLAN

Towards the close of the eleventh and the beginning of the twelfth century other fraternities had been formed in the same spirit as that of Citeaux; "in the first rank of these was the Order of the Premonstrants, so named from the mother abbey founded in 1119 by St. Norbert at Prémontré, near Coucy."[1]

[1] Anthyme St. Paul, *Histoire Monumentale de la France.*

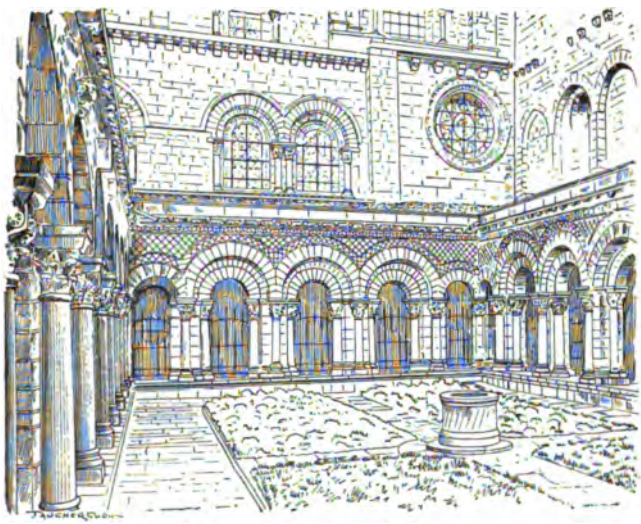
To this order the monastery of St. Martin at



142. ABBEY OF FONTEVRAULT. KITCHEN

Laon, and others in Champagne, Artois, Brittany, and Normandy owed their origin.

In the early part of the twelfth century Robert d'Arbrisselles founded several double monasteries for men and women, on the model of those built in Spain in the ninth century; that of Fontevrault was



143. CATHEDRAL OF PUY-EN-VELAY. CLOISTERS

not more successful as a monastic experiment than the rest, but it gave rise to a number of superb buildings. The abbey itself contributed in no slight degree to the progress of architecture, which developed in Anjou at the dawn of the twelfth century, and manifested itself principally at Angers in works the supreme importance of which we have dwelt upon in the early part of this volume.

The episcopal churches also owned claustral buildings for the accommodation of the cathedral clergy who lived together in communities according to the ancient usage which obtained down to the fifteenth century. The Cathedrals of Aix, Arles, and Cavaillon, in Provence, of Elne, in Roussillon, of Puy, in Velay, of St. Bertrand, in Comminges, still preserve their cloisters of the twelfth century.

The Abbey of La Chaise Dieu, in Auvergne, founded in the eleventh century, was one of the monastic schools which rose to great importance, mainly through the talents of its monkish architect and sculptor, Guinamaud, who established its reputation as an art centre. By the close of the twelfth century La Chaise Dieu was turning out proficients in sculpture, painting, and goldsmith's work.

The buildings of La Chaise Dieu were reconstructed in the thirteenth and fourteenth centuries.

The order of preaching friars, founded by St. Dominic in the early part of the thirteenth century, is noted rather for its intellectual than for its architectural achievements; the fame of the Dominicans rests upon their preaching and writings, not upon the number or magnificence of their monasteries.

About the same period St. Francis of Assisi founded the order of minor friars, who professed absolute poverty—a profession which, however, did not prevent their becoming richer at last than their forerunners. These two orders — preaching and mendicant friars, apparently formed in protest against the supremacy of the Benedictines—were strongly supported by St. Louis, who also protected other

orders, such as the Augustinians and Carmelites, by way of balancing the power of the Clunisians and Cistercians.

To the preaching friars St. Louis granted the site of the Church of St. Jacques, in the Rue St. Jacques, Paris — whence the name *Jacobin* as applied to

144. ABBEY OF LA CHAISE DIEU (AUVERGNE). CLOISTERS

monks of the Dominican order,—and here they built in 1221 the Jacobin monastery, the church of which, like those of Agen and Toulouse, has the double nave peculiar to the churches of the preaching friars.

From the thirteenth century onwards the arrangement of the abbeys diverges more and more from

the Benedictine system in the direction of secular models. The daily life of the abbots had come to differ but little from that of the laymen of their time, and as a natural consequence, monastic architecture lost its distinguishing characteristics.

The Rule of the Carthusian Order, founded towards the close of the eleventh century by St. Bruno, was of such extreme austerity, and was so persistently adhered to down to the fifteenth century, at least, that we need not wonder to find no vestiges of buildings erected by this community contemporaneously with those of other great foundations. The Carthusians clung longer than any of their brethren to the vows of poverty and humility which obliged them to live like anchorites, though dwelling under one roof. Far from living in common, on the cenobitic method, after the manner of the Benedictines and Cistercians, they maintained the cellular system in all its severity. Absolute silence further aggravated the complete isolation which encouraged them to scorn all that might alleviate or modify the rigours of their religious duties.

In time, however, the Carthusians relaxed something of this extreme asceticism in their monastic buildings, if not in their religious observances. Towards the fifteenth century they did homage to art by the construction of monasteries which, though falling short of the Cistercian monuments in magnificence, are of much interest from their peculiarities of arrangement.

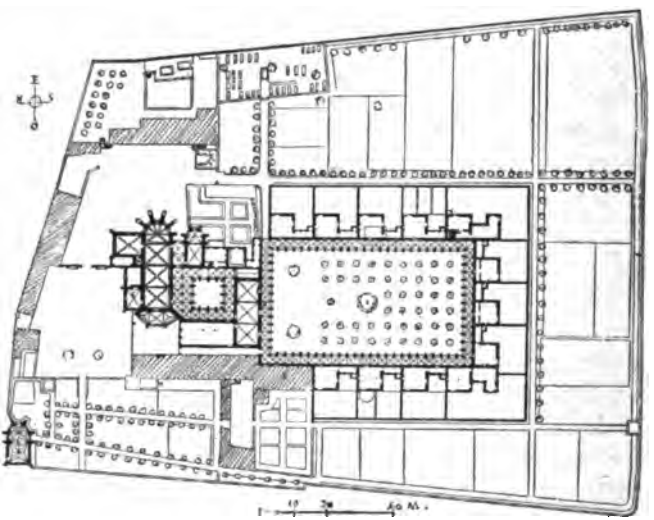
The ordinary buildings comprised the gate-house, giving access by a single door to the courtyard of the monastery, where stood the church, the prior's

lodging, the hostelry for guests and pilgrims, the laundry, the bakehouse, the cattlesheds, storerooms, and dovecote. The church communicated with an interior cloister, giving access to the chapter-house and refectory, which latter were only open to the monks at certain annual festivals. The typical feature of St. Bruno's more characteristic monasteries is the great cloister, on the true Carthusian model—that is to say, rectangular in form, and surrounded by an arcade, on which the cells of the monks open. Each of these cells was a little self-contained habitation, and had its own garden. The door of each cell was provided with a wicket, through which a lay brother passed the slender meal of the Carthusian who was forbidden to communicate with his fellows.

The Rule of St. Bruno, as is commonly known, enjoins the life of an anchorite; the Carthusian must work, eat, and drink in solitude; speech is interdicted; on meeting, the brethren are commanded to salute each other in silence; they assemble only in church for certain services prescribed by the Rule, and their meals, none too numerous at any time, were only taken in common on certain days in the year.

The severity of these conditions explains the extreme austerity of Carthusian architecture. It had, as we have already said, no real development until the fifteenth century, and then only as regards certain portions of the monastery, such as the church and its cloister, which were in strong contrast with the compulsory bareness of the great cloister of the monks.

The ancient *Chartreuse* of Villefranche de Rouergue, either built or reconstructed in the fifteenth and sixteenth centuries, still preserves some remarkable features. The plan, and the bird's-eye view (Figs. 145 and 146) from *L'Encyclopédie de l'Architecture et de la Construction*, gives an exact idea of the monastery. Some of the cells are still intact,

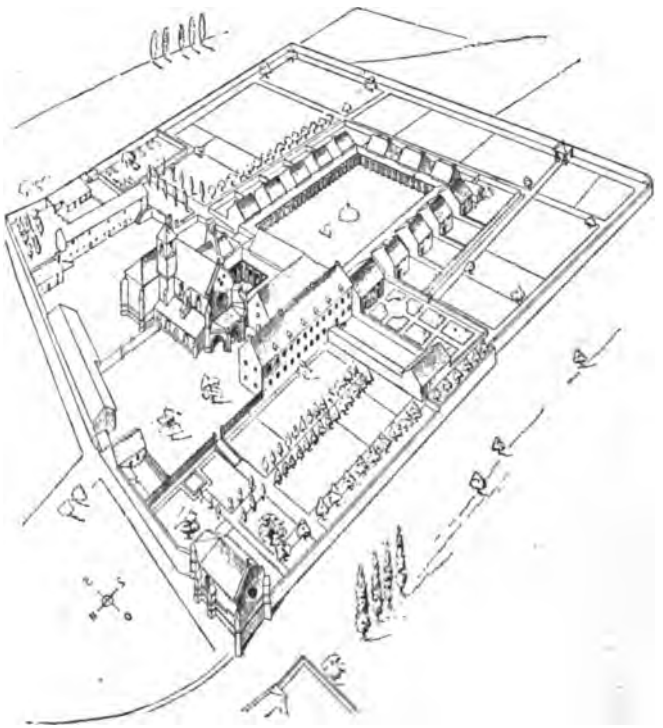


145. CHARTREUSE OF VILLEFRANCHE DE ROUERGUE. PLAN

also the refectory, and certain other portions of the primitive structure.

In spite of the rigidity of the *Rule* of St. Bruno certain foundations of his order became famous, notably the monastery established by the Carthusians on the invitation of St. Louis in the celebrated castle of Vauvert, beyond the walls of Paris, near the *Route d'Issy*. The castle was regarded with terror by the

Parisians, who declared it to be haunted by the devil, whence the popular expression: *aller au diable Vauvert*, which later was corrupted into *aller au*



146. CHARTREUSE OF VILLEFRANCHE DE ROUERGUE. BIRD'S-EYE VIEW

diable au vert. The Carthusians, nevertheless, took up their quarters in the stronghold, and enriched it with a splendid church built by Pierre de Montereau, the foundation stone of which was laid by St. Louis in 1260. The *Chartreuse* of Vauvert developed

greatly, and became one of the most famous of the order. It was in the lesser cloister of this monastery

147. GRANDE CHARTREUSE. THE GREAT CLOISTER

that the artist Eustache Le Sueur painted his famous frescoes from the life of St. Bruno in the beginning of the seventeenth century.

The most famous Carthusian monasteries of Italy are those of Florence, which dates from the middle of the fourteenth century, and is attributed in part to Orcagna, and of Pavia, founded at the close of the fourteenth century by Giovanni Galeazzo Visconti.

The French Carthusian monasteries of greatest

148. GRANDE CHARTREUSE. GENERAL VIEW

interest after Vauvert, which had the special advantage of royal protection, are those of Clermont, in Auvergne, Villefranche de Rouergue (Figs. 145 and 146), Villeneuve-lez-Avignon, and Montrieux, in Var. The *Chartreuse* of Dijon is one of the most ancient, not only as to its buildings, which are the work of the Duke of Burgundy's architects, but in respect of its famous sculptures of the tomb of Philip the Bold, and his wife, Margaret of Flanders, and those

of the *Well of Moses*, carved by the Burgundian brothers, Claux Suter, who flourished at the close of the fourteenth century, and had much to do with the revival of art at that period.[1]

But the most imposing of all, and the most famous, if not the most beautiful, is that in the mountains near Grenoble, universally known as *La Grande Chartreuse.*

The original monastery is said to have been founded by St. Bruno. It consisted merely of a humble chapel and a few isolated cells, which are supposed to have occupied the site in the *Desert*, on which the Chapels of St. Bruno and St. Mary now stand. The existing buildings were reconstructed in the sixteenth and seventeenth centuries in the manner of the day, of which the arcades of the great cloister are good examples. The present church, which is extremely simple in design, has preserved nothing of its sixteenth-century decoration but the choir stalls. The great cloister consists of an arcaded gallery, on which the sixty cells of the monks open. It is arranged in strict accordance with the Rule of St. Bruno as regards its connection with the main buildings, the chief features of which we have already pointed out.

[1] See Part I., "Sculpture."

CHAPTER IV

FORTIFIED ABBEYS

THE monasteries built throughout the twelfth century were provided with outer walls, by means of which the claustral buildings, offices, workshops, and even farms of the community were enclosed. Thus all the necessaries of life were produced within the precincts, and all communication with the outside world was avoided.

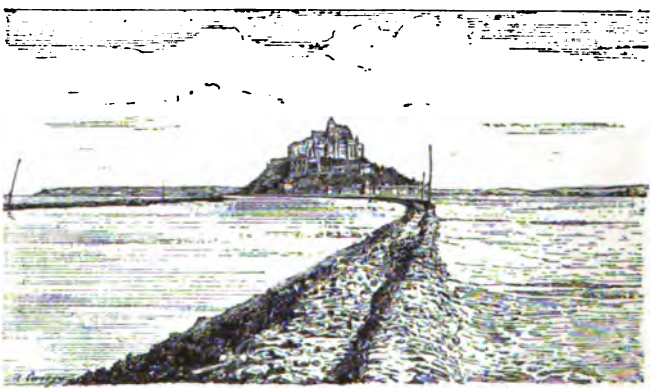
But by the end of the century the great abbeys had become feudal castles; and fortified walls were raised around them, often embracing the town which had grown up under their protection and shared their fortunes. This was the case at Cluny, and the town acknowledged its obligations to the monks by the payment of tithes.

In the reign of Philip Augustus and St. Louis the abbots were not only the heads of their monasteries but feudal chieftains, vassals of the royal power, and as such obliged to furnish the sovereign with men-at-arms in time of war, and to maintain a garrison when required.[1]

[1] See Part III., "Military Architecture," Abbey of Mont St. Michel.

The Abbey of Tournus was, like Cluny, surrounded by walls connected with the city ramparts.

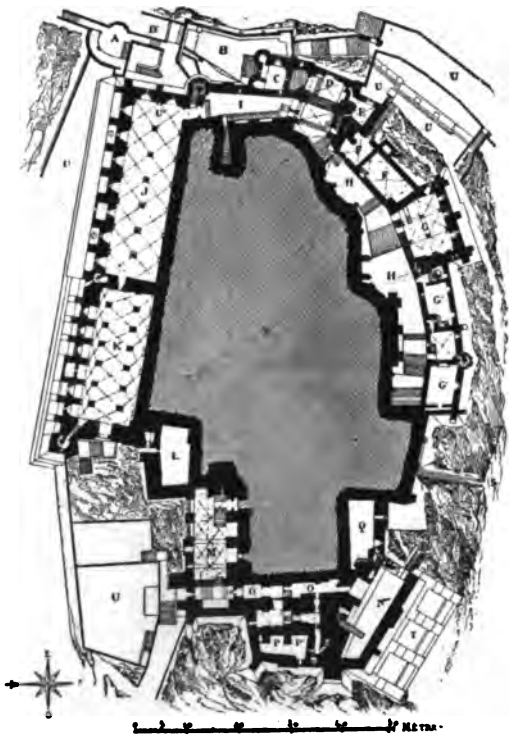
The Abbey of St. Allyre, in Auvergne, near Clermont, was defended by walls and towers, which seem to have been added to the original structure of the ninth century at some period during the thirteenth, when such fortification of religious houses became necessary.



149. ABBEY OF MONT ST. MICHEL. GENERAL VIEW FROM THE ROCKS OF COUESNON, TAKEN IN 1878, BEFORE THE CONSTRUCTION OF THE DYKE

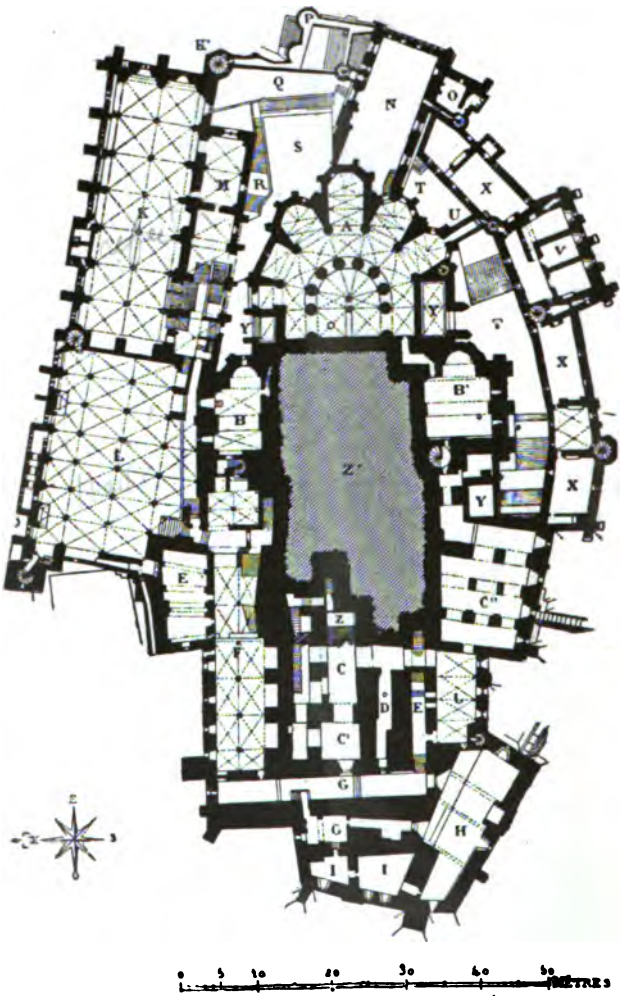
In many other monasteries a system of defence more or less elaborate was adopted; but the most famous of all the abbeys built by the Benedictines was unquestionably Mont St. Michel, which, for boldness and grandeur of design, is unique among military and monastic monuments from the eleventh to the close of the fifteenth century.

The Abbey of Mont St. Michel was founded in 708 by St. Aubert, according to tradition. At the



150. ABBEY OF MONT ST. MICHEL. PLAN AT THE LEVEL OF THE GUARD-ROOM, ALMONRY, AND CELLAR

Key to Plan.—A. Tower known as the *Tour Claudine.* Ramparts. B. Barbican. Entrance to the abbey. B'. Ruin of the stairway known as the *Grand Degré.* C. Gate-house. D. Guard-room known as *Bellechaise.* E. Tower known as the *Tour Perrine.* F. Steward's lodging and Bailey. G. Abbot's lodging. G'. Abbatial buildings. G''. Chapel of St. Catherine. H. Courtyard of the church, great stairway. I. Courtyard of the *Merveille.* J, K. Almonry, cellar (of the *Merveille*). L. Formerly the abbatial buildings. M. Gallery or crypt known as the *Galerie de l'Aquilon* (of the North Wind). N. Hostelry (Robert de Thorigni). O. Passages connecting the abbey with the hostelry. P, P'. Prison and dungeon. R, S. Staircase. T. Modern wall of abutment. U. Garden, terraces, and covered way. V. Body of rock.



151. ABBEY OF MONT ST. MICHEL. PLAN AT THE LEVEL OF THE LOWER CHURCH, THE REFECTORY, AND THE CHAPTER-HOUSE, OR KNIGHTS' HALL.—*For Key to Plan see opposite page.*

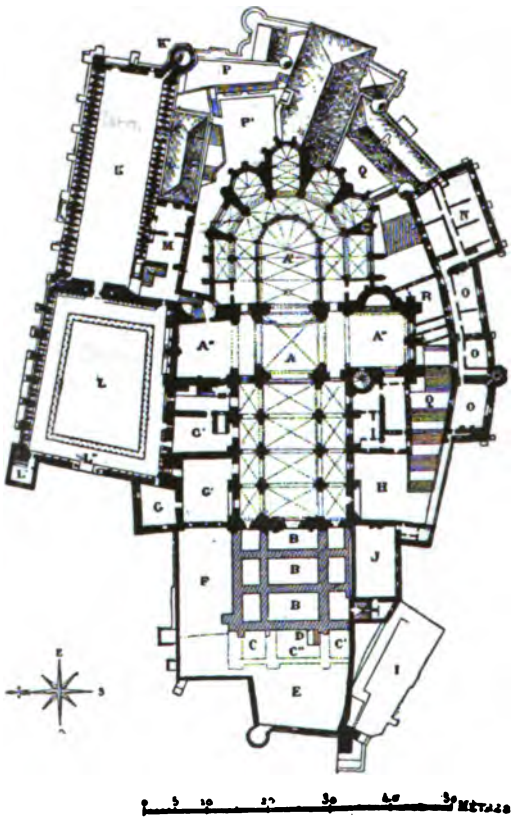
close of the tenth century it was restored by Richard Sans Peur, third Duke of Normandy, with the help of the Benedictine monks from Monte Casino, whom he had installed at St. Michel in 966. It increased greatly in wealth and extent in the eleventh century, and by the end of the twelfth was in the full tide of its prosperity. Its buildings, however had not yet that importance to which they attained in the following century.[1] In the twelfth century they consisted of the church, which was built between 1020 and 1135[2] and the monastic buildings proper (*lieux réguliers*), with lodgings for servants and guests to the north of the nave, at G, G′, and F on the plan, Fig. 152. To these, which were restored or reconstructed in a great measure by the Abbot Roger II. at the beginning of the twelfth century, additions were made on the south and south-east by Robert de Thorigni from 1154 to 1186.

The monastery was not then fortified.

[1] *Description de l'Abbaye du Mont St. Michel*, by Ed. Corroyer; Paris, 1877. This work was crowned by the Institute in 1879, at the *Concours des Antiquités Nationales.*

[2] See *L'Architecture Romane*, by Ed. Corroyer; Paris, Maison Quantin, 1888.

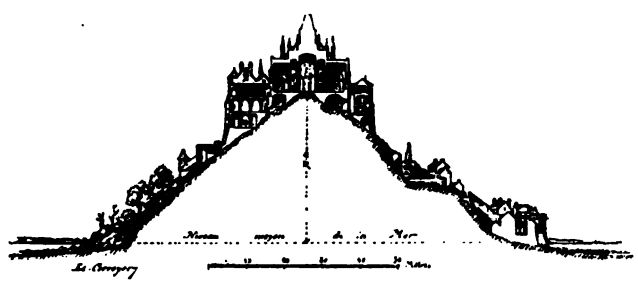
Key to Plan.—A. Lower church. B, B′. Chapels beneath the transepts. C. Substructure of Romanesque nave. C, C′, and C″. Charnel-house or burying-place of the monks, and substructure of south platform. D. Formerly the cistern. E. Formerly the claustral buildings. Refectory. F. Formerly the cloister or ambulatory. G. Passage communicating with the hostelry. H, I. Hostelry and offices (Robert de Thorigni). J. Chapel of hostelry (St. Étienne). K, K′, L, M. Refectory. Tower known as the *Tour des Corbins* (Tower of Crows). Chapter-house, or hall of the knights, Galilee or narthex (*Merveille*). N. Hall of the military executive, or hall of the officers. O. Tower known as the *Tour Perrine.* P. Battlements of the gate-house. Q. Courtyard of the *Merveille.* R, S. Staircase and terrace of the apse. T. Courtyard of the church. U. Fortified bridge connecting the lower church with the abbey buildings. V, X. Abbot's lodging. Accommodation for guests. Y, Y′. Cisterns of the fifteenth and sixteenth centuries. Z. Body of rock.



152. ABBEY OF MONT ST. MICHEL. PLAN AT THE LEVEL OF THE UPPER CHURCH, THE CLOISTERS, AND THE DORMITORY

Key to Plan.—A, A′, A″ Church, choir, and transepts. B, B′, B″. Three first bays of nave, destroyed in 1776. C, C′, C″. Towers and porch (Robert de Thorigni). D. Tomb of Robert de Thorigni. E. Formerly the terrace in front of the church. F. Formerly the chapter-house. G, G′. Formerly the claustral buildings. Dormitory. H. Platform at the southern entrance of the church. I. Ruin of the hostelry (Robert de Thorigni). J. Infirmary. K. Dormitories of the thirteenth century (*Merveille*). K′. Tower, known as the *Tour des Corbins* (thirteenth century, *Merveille*). L, L′. Cloister and archives (thirteenth century, *Merveille*). M. Vestry (thirteenth century, *Merveille*). N. Abbot's lodging. O. Accommodation for guests. P. Courtyard of the *Merveille*. P′. Terrace of the apse. Q. Courtyard of the church and great staircase.

Built on the summit of a rock, the impregnable steepness of which provided a natural rampart north and west, it depended solely upon the advantages of its position for defence. Its situation in the midst of a treacherous sandy plain—a position which gave rise to the mediæval name, *Le Mont St. Michel au Péril de la Mer*—secured it against attempts at investiture, and even to a great extent against sudden assaults. Enclosures of stone or wooden fences surrounded it at those points on the east



153. ABBEY OF MONT ST. MICHEL. TRANSVERSE SECTION, FROM NORTH TO SOUTH [1]

where the less rugged nature of the surface rendered access comparatively easy, and where stood the entrance, with the various habitations which had grouped themselves round it. The so-called *town* had been founded in the tenth century by a few families decimated by the Normans, in their raids upon Avranches and its neighbourhood after the death of Charlemagne. In the thirteenth century it consisted of a small number of houses which, by

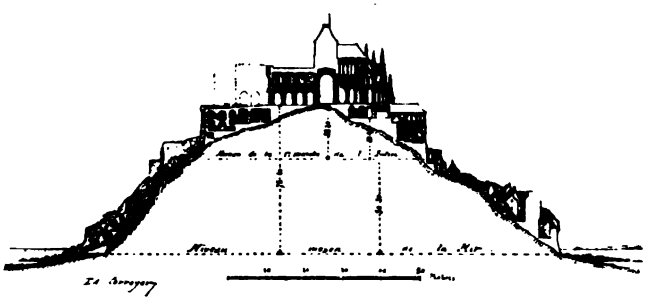
[1] *Description de l'Abbaye du Mont St. Michel et de ses Abords*, by Ed. Corroyer; Paris, 1877.

way of security against the vagaries of the sea, were built upon the highest point of the rock to the east.

In 1203 the greater part of the abbey, the church excepted, was destroyed during the wars between Philip Augustus, King of France, and John, King of England.

Historic records prove conclusively that the abbey had no defensive works properly so-called in the twelfth and early part of the thirteenth century.

From this period onwards abbeys, more especially



154. ABBEY OF MONT ST. MICHEL. LONGITUDINAL SECTION, FROM WEST TO EAST

those of the Benedictine orders, were transformed into regular fortresses capable of sustaining a siege. The abbots, in their character of feudal lords, fortified their monasteries to ensure them against disasters such as had marked the early years of the thirteenth century. Mont St. Michel is one of the most curious examples of such fortification.

The original architects of the abbey seem to have been unwilling to diminish the height of the mount by levelling. Resolving to detract in no degree from the majesty of so splendid a base for

their church, they set about their work on the same principle as the pyramid builders. Our illustrations show how the buildings were raised partly on plateaux circumscribing the apex of the mount, partly on that apex itself. The result is that the monastery, as we see it, has a core of rock rising at its highest point to the very floor of the church. The ring of lower stories rests upon walls of great thickness, and upon piers united by vaults, the whole forming a substructure of perfect solidity.

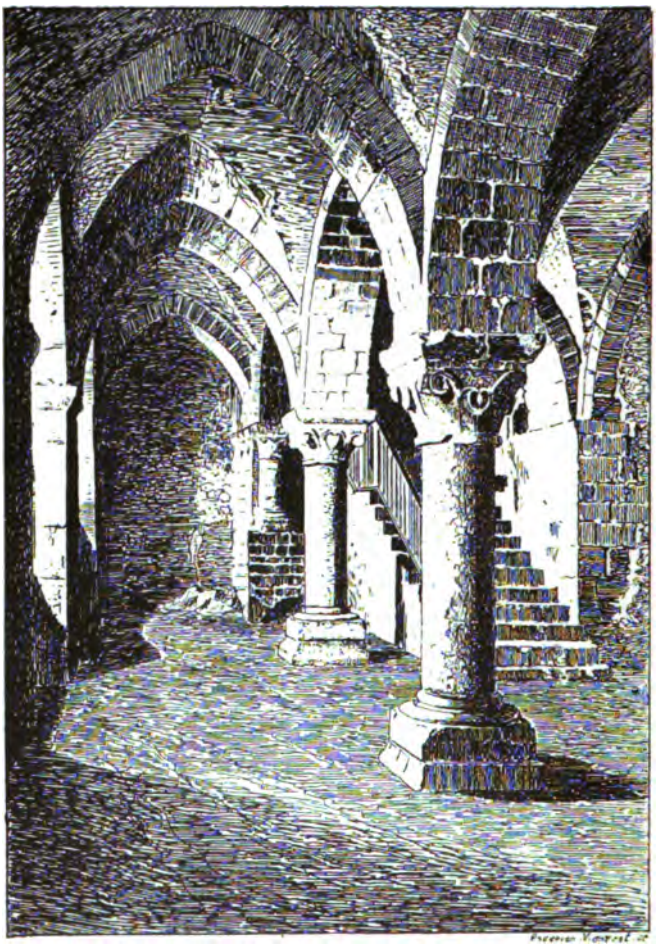
The section made through the transept (Fig. 153) gives an exact idea of the portion which dates from the eleventh and twelfth centuries, and of the buildings which gradually grouped themselves round this nucleus, such as the so-called *Merveille* (Marvel) to the north, and the abbot's lodging to the south.

The longitudinal section (Fig. 154) shows the crypt, or lower church. This was not, as has been frequently asserted, actually hollowed out of the rock; it was, however, very ingeniously contrived in the fifteenth century over the ruins of the Romanesque church in the space between the declivity of the mount and the artificial plateau of the earlier architects. The substructures of the Romanesque church which were enlarged by Robert de Thorigni in the thirteenth century are indicated in this diagram. They are of gigantic proportions, especially towards the west.

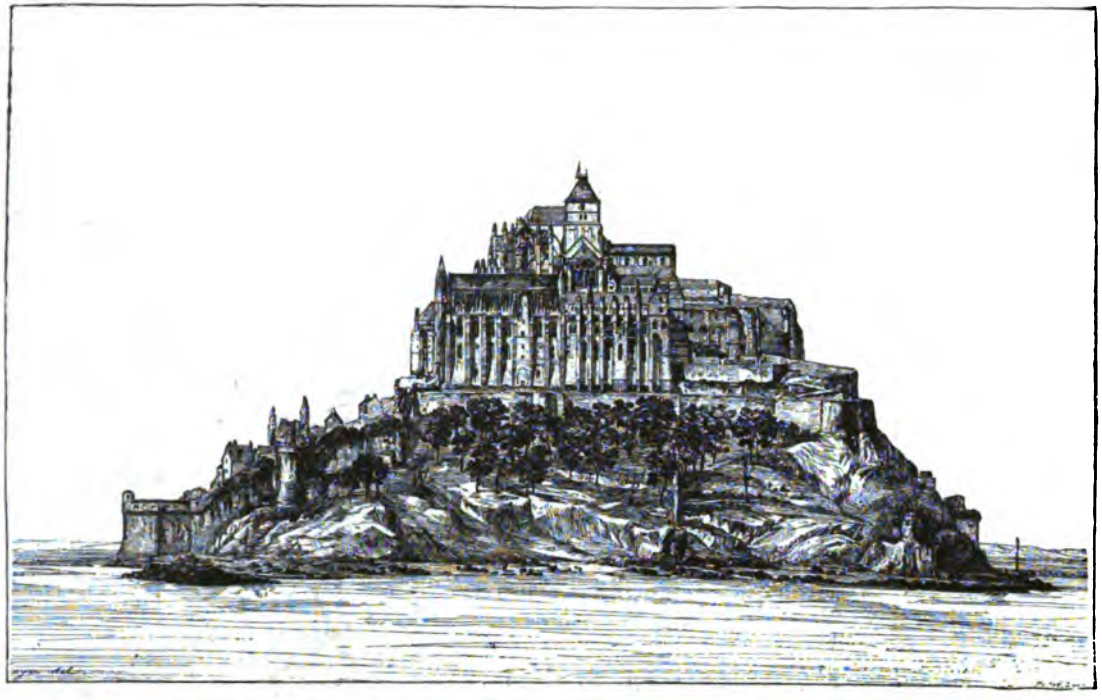
Fig. 155 shows the so-called *Galerie de l'Aquilon* (Gallery of the North Wind), one of the upper stories of the claustral buildings to the north of the church constructed by Roger II., eleventh abbot (1106-1122).

After the fire of 1203, when the abbey had

become a feof of the royal domain, the Abbot



155. ABBEY OF MONT ST. MICHEL. GALERIE DE L'AQUILON (GALLERY OF THE NORTH WIND)



156. ABBEY OF MONT ST. MICHEL, NORTH FRONT. GENERAL VIEW FROM THE SEA

Jourdain and his successors rebuilt it almost entirely, with the exception of the church.

157. ABBEY OF MONT ST. MICHEL. THE ALMONRY. PERSPECTIVE VIEW LOOKING WEST. THE CELLAR BEYOND

As the peculiarities of the site made it impossible to adhere strictly to the Benedictine system of direct communication between the main buildings and the

church, the *lieux réguliers*, or accommodation reserved for the monks, were disposed above the magnificent building to the north of the church, which, from the

158. ABBEY OF MONT ST. MICHEL. NAMES OF THE ARCHITECTS OR SCULPTORS OF THE CHOIR

time of its foundation, was known as *La Merveille* (the Marvel).

This vast structure fairly takes rank as the grandest example of combined religious and military architecture of the finest mediæval period.

The *Merveille* consists of three stories, two of

159. ABBEY OF MONT ST. MICHEL. CELLAR. PERSPECTIVE VIEW FROM WEST TO EAST. THE ALMONRY BEYOND

which are vaulted. The lowest contains the almonry

and cellar; the intermediate story the refectory and the knights' hall; the third the dormitory and cloister. The building consists of two wings running east and west; the apartments are superposed as follows:—In the east wing the almonry, the refectory, and the dormitory; in the west the cellar, the knights' hall, and the cloister.[1]

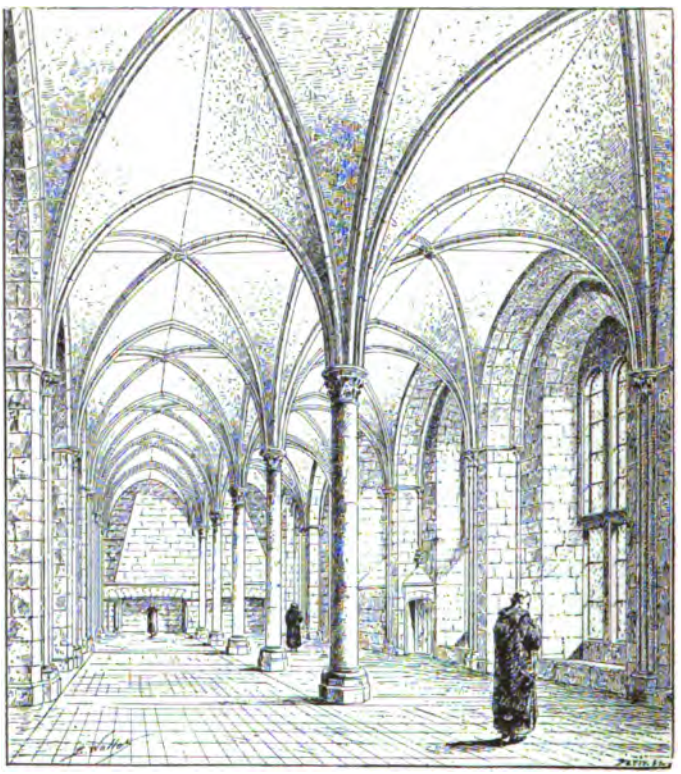
This splendid structure is built entirely of granite. It was carried out by one continuous effort, under the inspiration of an incomparably bold and learned design of the Abbé Jourdain, to which his successors religiously adhered.

The undertaking was entered upon in 1203 and finished in 1228, the final achievement being the cloister, the architects or sculptors of which are commemorated by an inscription in the spandril of one of the arcades in the south walk.

To fully appreciate this stupendous monument, we must realise the extraordinary energy which enabled its architects to complete it in the comparatively short space of twenty-five years. We must take into account the conditions of its growth, its situation on the very summit of a rugged cliff, cut off from the mainland at times by the sea, at other times by an expanse of treacherous quicksand. We must consider the enormous difficulties of transporting materials, seeing that all the granite used was quarried by the monks from the neighbouring coast. It is true that an unimportant quota of the stone was dug from the base of the rock itself. But though the passage across the sands was by this

[1] *Description de l'Abbaye du Mont St. Michel et de ses Abords*, by Ed. Corroyer; Paris, 1877.

means avoided, the difficulties of raising great masses of stone to the foot of the *Merveille*, the foundations of which are over 160 feet above the sea-level, had



160. ABBEY OF MONT ST. MICHEL. REFECTORY

still to be met. It seems certain that the east and west buildings of which the *Merveille* consists were built at the same time, for though certain differences

are perceptible in the form of the exterior buttresses, they evidently result from the interior formation of the various apartments. A study of the plans,

161. ABBEY OF MONT ST. MICHEL. CHAPTER-HOUSE, CALLED THE HALL OF THE KNIGHTS

sections, and façades of the buildings is convincing on this head, and the general arrangements, notably that of the staircase, all point to the same conclusion.

This staircase is a spiral in the thickness of the buttress which, with its crowning octagonal turret, forms the point of junction between the two buildings. It winds from the almonry of the eastern ground-floor to the knights' hall on the west, passing through the dormitory of the eastern block to terminate in the northern embattlement above.

The eastern and northern façades of the *Merveille* are models of severe and virile beauty; a massive

162. ST. MICHAEL'S MOUNT, CORNWALL.

grandeur characterises them, especially striking and impressive in the northern front as viewed from the sea. The vast walls of granite (the material used throughout, save in the inner walk of the cloister) are pierced with windows varying in shape according to the character of the rooms they light. Those of the dormitory are very remarkable. They are long and narrow, and affect the aspect of loopholes, deeply splayed outwards; the peculiar form of the honeycombed window-heads suggests a reminiscence

of Arab types seen by the French Crusaders in Palestine. The thrusts of the interior vaulting are met on the exterior by massive buttresses, the vigorous profiles of which contribute greatly to the nobility of the general effect.

These formidable façades were practically fortifications, but the *Merveille* was further defended to the north by an embattled wall, flanked by a tower which served as a post for watchmen, to which the covered ways running round the base of the western buildings converged.

In the middle, on a level with the north-west angle of the *Merveille*, a *châtelet*, or miniature keep, now destroyed, guarded the rugged passage between embattled walls which led to the Fountain of St. Aubert, and was known as the *Passage du Degré* (passage of the stairway).

The various buildings of the abbey which were added in the fourteenth century, after the construction of the *Merveille*, are: the abbot's lodging, with its offices on the south, and certain military works which completed the defensive system. In the fourteenth and fifteenth centuries these were gradually extended to the walls of the town, as we shall see in Part III., "Military Architecture."

PART III

MILITARY ARCHITECTURE

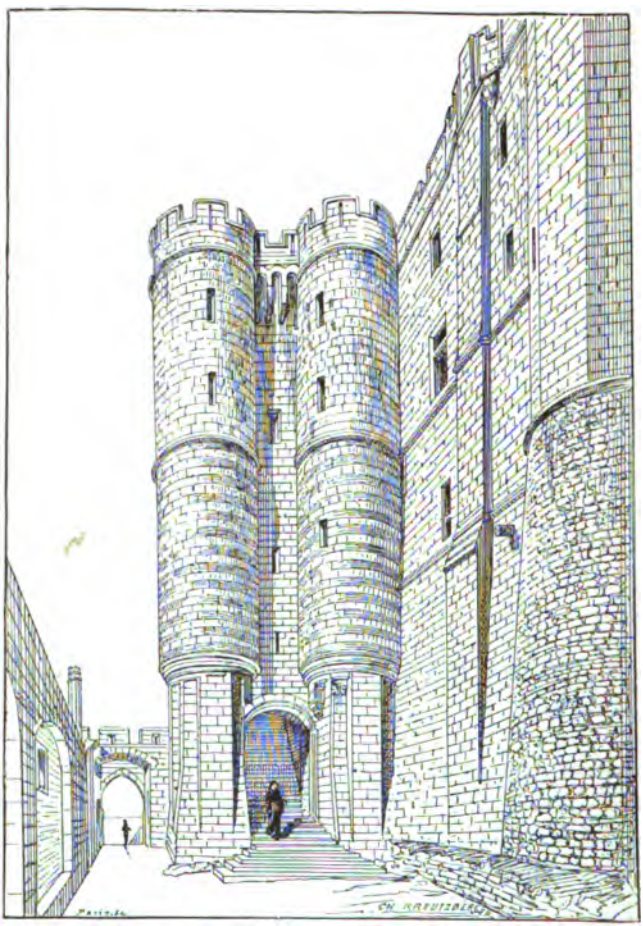
CHAPTER I

CIRCUMVALLATION OF TOWNS

THE distinctive character of military architecture in the Middle Ages must be sought in defensive fortification. In all other respects its constructive methods were identical with those employed in architectural works generally. The few ornamental features of military buildings, as, for instance, the interior vaults and the profiles of consoles and cornices, diverge but slightly from the accepted types of such features in the churches, monasteries, and domestic structures of the period.

The Latin, Roman, Gallo-Roman, Romanesque, and Gothic architects were versed in every department of the art they practised. The same architect was called upon to construct the church and the fortress, the abbey, and the ramparts which were often its necessary complement, the donjon, and castle, the town hall, the hospital, the rural barn, and the urban dwelling. He was responsible not only for the inception of every class and form of building, but for its successful elaboration; on him alone the responsibility of its execution rested; no scientific specialist checked his conclusions and verified his

calculations as in our own time. The system by



163. ABBEY OF MONT ST. MICHEL. GATE-HOUSE

which the architect and the engineer have each

their separate functions and responsibilities in the construction of the same building was unknown. The builder, or mason, as some would have him called, was an architect in the fullest sense; he himself traced the diagrams of his conceptions, and directed the execution of every detail, careful alike of stability and beauty.

It is a curious and disheartening phenomenon that such a direct contravention of the principles of mediæval art as the modern system of divided responsibility implies, should obtain only among the French, the very people to whom Western Europe owes its initiation into those principles. In England, in Belgium, in Holland, Switzerland, and Germany the architect is also the engineer; the science and the art of his craft are inseparable. "This intimate union of qualities gives an individuality to certain productions of these nations which we might well lay to heart and make the subject of serious comparative study. We must needs admit to begin with that we ourselves have become disciples rather than pioneers in a great movement." [1]

The one preoccupation of the modern engineer seems to be the satisfaction of imperious necessity. He is inclined to neglect all that mathematics cannot give him. And yet he has brought about a very sensible progress by his mathematical application of modern science. He has unquestionably excelled in industrial masterpieces perfectly adapted to the needs of the moment, if wanting in the

[1] "L'Art à l'Exposition," *L'Architecture*, by Ed. Corroyer; Paris. *L'Illustration*, for 25th May 1889.

qualities that make for immortality. We accept with qualified admiration his marvellous bridges and kindred works in metal—marvellous yet ephemeral; but we accept them merely as a temporary substitute for the more solid if less showy stone bridges of our early architects.

We would not have the servant of yesterday the master of to-morrow. We protest against the degradation of the architect from his high and noble estate to the rank of a mere decorator, however skilful. We would not witness the extinction of the ancient French traditions which inspired so many masterpieces, and to which we look as the source of many yet to come.

It appears, moreover, that the general acceptation of the word *ingénieur* (engineer) is a totally mistaken one. It is derived from the mediæval term *engigneur*, which was very differently applied.

The architect and the engineer of our own day are both *constructors*, but with a difference. The architect loves and cultivates his art; the engineer, with few exceptions, despises, or affects to despise, his.

In the Middle Ages their functions were perfectly distinct. The architect constructed what the *engigneur* used his utmost cunning to destroy. The architect built ramparts and strengthened them with towers; the *engigneur* undermined them if attacking, or countermined them if defending. It was his business to invent or direct the use of engines of war, such as rams, mangonels, arblasts, and machines for the slinging of enormous projectiles, or grenades. He constructed the portable wooden towers which

the besieging party brought up against the walls for an escalade, directed the sappers who undermined them, and, in fact, superintended the manufacture of all such offensive engines as were necessary in the conduct of a siege, a process which, before the invention of firearms, necessitated preparations as prolonged and tedious as they were complicated and uncertain. In short, the architect was the constructor of fortifications, the *engigneur* their assailant or defender. It was not until the time of Vauban that military engineers were called upon to exercise functions so much more extensive. At an earlier

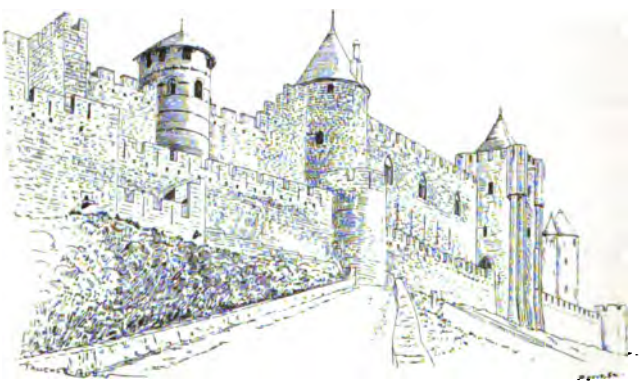
164. CITY OF CARCASSONNE. RAMPARTS TO THE SOUTH-EAST

period there were, however, specialists in construction who undertook such works as the circumvallation of Aigues-Mortes, but their labours had little in common with those of modern engineers.

Before the feudal period the fortifications of camps consisted either of earthworks, of walls built of mud and logs, or of palisades surrounded by ditches, in imitation of the Roman methods of castrametation. The *enceintes* of towns fortified by the Romans were walls defended by round or square towers. These walls were built double; a space of several yards intervened, which was filled up with the earth dug from the moat or ditch, mixed with

rubble. The mass was levelled at the top and paved to form what is technically known as a covered way, or terrace protected by an embattled wall rising from the outer curtain.

That portion of the *enceinte* of Carcassonne which was built by the Visigoths in the sixth century is thus constructed on the Roman model. "The ground on which the town is built rises considerably above



165. CITY OF CARCASSONNE. NORTH-WEST RAMPARTS. ROMANO-VISIGOTHIC TOWER (FIRST ON THE LEFT)

that beyond the walls, and is almost on a level with the rampart. The curtains[1] are of great thickness; they are composed of two facings of dressed stones cut into small cubes, which alternate with courses of bricks; the intervening space is filled not with earth, but with a concrete formed of rubble and lime."[2] The flanking towers which rise considerably above the curtains were so disposed that it was possible to

[1] The wall space between the towers.

[2] Viollet-le-Duc, *La Cité de Carcassonne.*

isolate them from the walls by raising drawbridges. Thus each tower formed an independent stronghold against assailants.

Fig. 165 shows a portion of the north-west ramparts of the city of Carcassonne, with the first round tower; to the left of the drawing is the Romano-Visigothic tower, flanking right and left the curtains of the same period.

In accordance with the Roman tradition the *enceinte* of a town, formed, as we have seen, of ramparts strengthened by towers, were further defended by a citadel or keep, of which we shall have more to say in the following chapter. This keep commanded the whole place, which was usually situated on the slope of a hill above the bank of a river. The bridge which communicated with the opposite bank was fortified by a gate-house or *tête de pont*, to guard the passage.

The circumvallation of towns often consisted of a double enclosure, divided by a moat. By the close of the twelfth century architects had caught the inspiration of the great military works of the Crusaders in the East, and military architecture had progressed on the same lines as religious and monastic architecture.

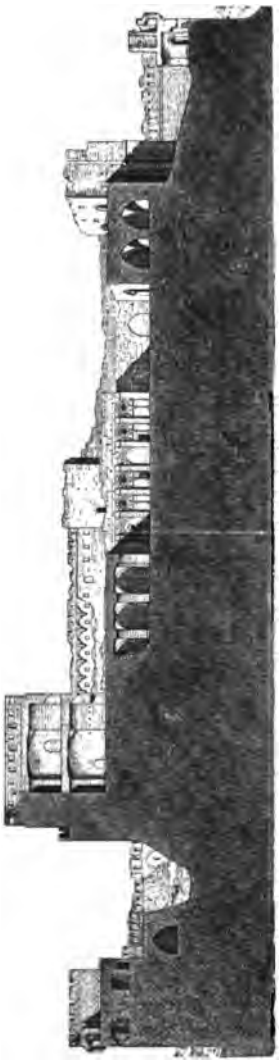
The territories, conquered by the Crusaders in the course of establishing the Christian supremacy in the East, had been divided into feofs as early as the twelfth century. These soon boasted castles, churches, and monastic foundations, of the Cistercian and Premonstrant orders among others.

According to G. Rey, the following abbeys and priories were built in the neighbourhood of Jerusalem

at this period:—The monasteries of Mount Sion, Mount Olivet, Jehoshaphat, St. Habakkuk, and St. Samuel, etc., and in Galilee, those of Mount Tabor and Palmarée. The military organisation was regulated by the *Assises de la haute Cour* (Assizes of the Supreme Court), which determined the number of knights to be furnished by each feof for the defence of the kingdom, and in like manner, the number of men-at-arms required from each church and each community of citizens. . . . The middle of the twelfth century was the period at which the Christian colonies of the Holy Land were most flourishing. Undeterred by the wars of which Syria was the theatre, the Franks had promptly assimilated the Greek and Roman tradition as manifested in Byzantine types of military architecture. The double enclosure flanked by towers, one of the main features of Syrian fortresses built by the Crusaders, was borrowed from the Greeks. Many of their strongholds, notably Morgat, the so-called *Krak* of the knights, and Tortosa, were of colossal proportions. They may be divided into two classes. In the first, the buildings are of the Frankish type, and seem to be modelled on the French castles of the eleventh and twelfth centuries. The flanking towers are nearly always round; they contain a defensive story, while their summits and those of the intervening curtains are crowned with battlements in the French fashion. Other features subsequently introduced were: the double *enceinte*, borrowed from the Byzantines, the inner line of which commanded the outer, and was sufficiently near to allow its defenders to engage, should assailants have carried the first

barrier; secondly, stone machicolations in place of the wooden *hourds* or timber scaffoldings which were retained in France till the close of the thirteenth century; and finally, the talus, a device by which the thickness of the walls was tripled at the base, thus affording increased security against the arts of the sapper and the earthquake shocks so frequent in the East.

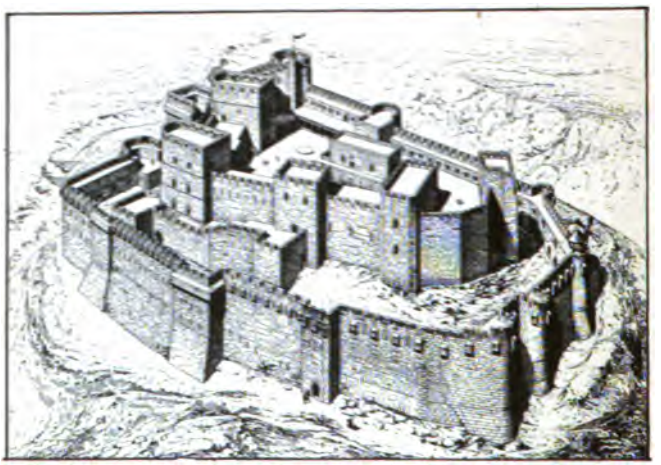
The buildings of the second class belong to the school of the Knights Templars. Their characteristic features are the towers, invariably square or oblong in shape, and projecting but slightly from the curtains. The fortress of Kalaat-el-Hosn,[1] or *Krak* of the knights, commanded the pass through which ran the roads from Homs and Hamah to Tripoli and



166. FORTRESS OF KALAAT-EL-HOSN IN SYRIA (*KRAK* OF THE KNIGHTS). SECTION, AS RESTORED BY M. G. REY.

[1] *Étude sur les Monuments de l'Architecture Militaire des croisés en Syrie*, by G. Rey; Paris, 1871.

Tortosa, and was a military station of the first importance. Together with the castles of Akkar, Arcos, La Colee, Chastel-Blanc, Areynieh, Yammour, Tortosa, and Markab, and the various auxiliary towers and posts, it constituted a system of defence designed to protect Tripoli from the incursions of the Mahometans, who retained their hold on the

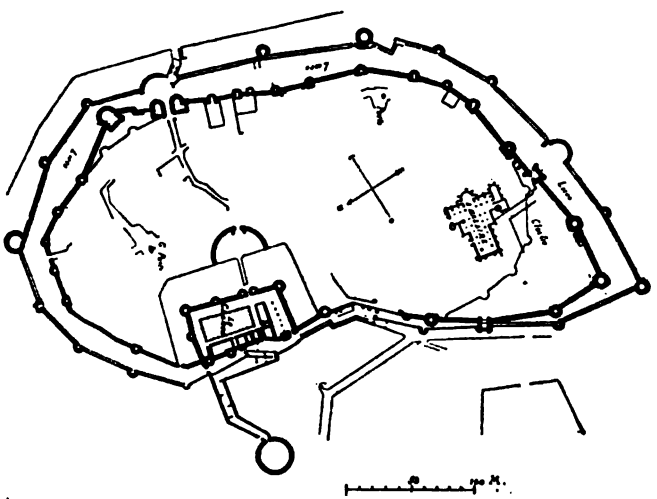


166A. FORTRESS DE KALAAT-EL-HOSN IN SYRIA (*KRAK* OF THE KNIGHTS). AS RESTORED BY M. G. REY

greater part of Syria. . . . The *Krak*, which was built under the direction of the Knights Hospitallers, has a double *enceinte*, separated by a wide ditch partly filled with water. The inner wall forms a reduct, and rising above the outer enclosure commands its defences. It also encompasses the various dependencies of the castle, the great hall, chapel, domestic buildings, and magazines. A long vaulted

passage, easy of defence, was the only entrance to the place. To the north and west the outer line consisted of a curtain flanked by rounded turrets, and crowned by machicolations, which formed a continuous scaffolding of stone along the greater part of the *enceinte*.

The action of the East upon the West was



167. CITY OF CARCASSONNE. PLAN (THIRTEENTH CENTURY)

manifested in the thirteenth and fourteenth centuries by the application to the fortification of Carcassonne and Aigues-Mortes of methods in use among the Crusaders in Syria.

This oriental influence is apparent at Carcassonne in the double *enceinte* borrowed from Syrian fortresses.

The city of Carcassonne stands upon a plateau commanding the valley of the Aude, the site of an

ancient Roman *castellum*. In the sixth century it fell into the hands of the Visigoths, who fortified it. It increased considerably in extent during the tenth, eleventh, and twelfth centuries, but in the time of Simon de Montfort (1209) and of Raymon de Trancavel (1240) the *enceinte* was not nearly so important as it became under St. Louis. By the middle of the thirteenth century the king had begun

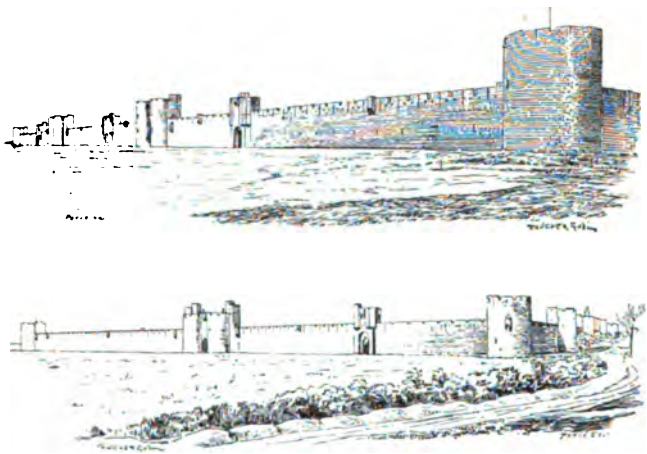
168. CITY OF CARCASSONNE. RAMPARTS. SOUTH-WEST ANGLE

the construction of defensive works on a vast scale, and built the outer *enceinte*, which still exists, as may be seen on the plan (Fig. 167) taken from Viollet-le-Duc's *Cité de Carcassonne*.

The primary object of the *enceinte* was to secure the place against a sudden attack during the completion or enlargement of its interior defences. The additions of St. Louis, which were carried on by Philip the Bold, rendered Carcassonne impregnable

in the general estimation. "As a fact, it was never invested, and did not open its gates to Edward the Black Prince till 1355, when all Languedoc had submitted to him." [1]

Oriental influences are equally evident at Aigues-Mortes. The Genoese Guglielmo Boccanera, who constructed the *enceinte*, was apparently familiar with



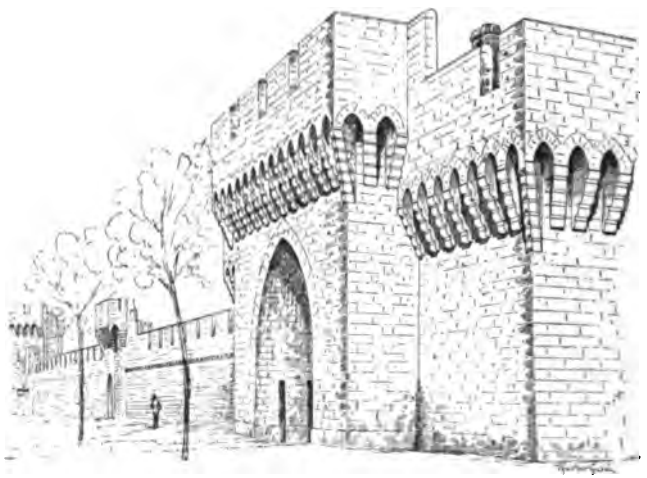
169. RAMPARTS OF AIGUES-MORTES, NORTH AND SOUTH

the system of fortification adopted by the Crusaders in Syria. The machicolations which here make their first appearance in Languedoc (in the reign of Philip the Bold), proclaim the filiation of Aigues-Mortes to the Syrian fortresses. Italian influences are also perceptible in the square plan of the flanking towers. French architects had always preferred the round tower, as more solid in itself, and less open

[1] Viollet-le-Duc, *La Cité de Carcassonne.*

to attack from sappers, who, in advancing against a building of this form, were fully exposed to the missiles of the defenders from the curtains adjoining; while, on the other hand, the angles of the square tower gave a certain protection to assailants advancing against its front.

The ramparts of Avignon, which date from the

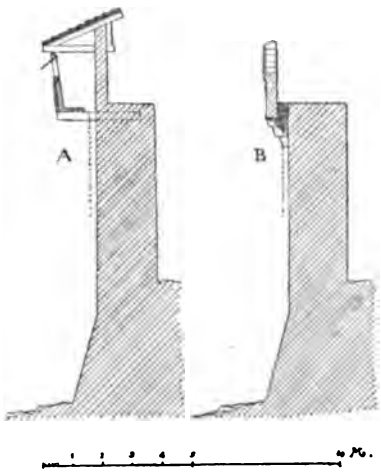


170. RAMPARTS OF AVIGNON. CURTAIN, TOWERS, AND MACHICOLATIONS

fourteenth century, seem to have been constructed on Italian methods. The curtains are flanked by square towers, open towards the town, and surmounted by embattled parapets corbelled out from the walls, and machicolated so as to command their bases.

In the thirteenth century walls and towers were provided with movable wooden scaffoldings, as

shown at A in the figure. Spaces were left in the masonry of the walls for the insertion of wooden beams, which, projecting from the curtain, supported an overhanging gallery. This, being pierced with traps or apertures in the flooring, commanded the base of the wall, and was an important element in defensive operations. But as it was found that these timber galleries were easily set on fire by assailants, they were replaced in the fourteenth century by stone machicolations, as shown at B, consisting of corbels, supporting an embattled parapet. Between the inner face of the parapet and the outer face of the curtain the supporting corbels alternated with openings for the defence of the base, as already described. This arrangement, among the earliest examples of which are the square towers of Avignon, was soon generally adopted by architects in the construction of city ramparts.



170A. MACHICOLATIONS

"The art of fortification, which had made great advances at the beginning of the thirteenth century, remained almost stationary to the end of it. During the Hundred Years' War, however, it received a fresh

impetus. When order had been restored in the kingdom, Charles VII. set about the restoration or reconstruction of many fortresses recaptured from the English. In the defensive works of such towns and castles, and in various new undertakings of a like nature, we recognise the method and regularity proper to an art based on well-defined principles, and far advanced towards mastery." [1]

In the Abbey of Mont St. Michel the successive modifications applied to military *enceintes* from the

171. RAMPARTS OF ST. MALO (FIFTEENTH CENTURY)

thirteenth to the fifteenth century, are illustrated in the fullest and most interesting manner.

Of the fourteenth century fortifications, which surrounded the original town at the summit of the rock, connecting the ramparts with the *Merveille* on the north, and the abbey buildings on the south, some fragments still remain. The tower on the north is intact. The walls are crowned with machicolations, in accordance with the then novel system of massing the defences at the top of the ramparts. The gate of the *enceinte* was to the south-east,

[1] Viollet-le-Duc, *Dictionnaire*, vol. i.

judging from the miniatures in the *livre d'heures* of Pierre II., Duke of Brittany, which show the arrangement of the original *enceinte* at the close of the fourteenth century.

The abbey was at this time governed by Pierre Le Roy, one of its ablest abbots and most famous constructors. He rebuilt the summit of the *Tour des Corbins* (*merveille*), restored, and re-roofed the abbey buildings to the south of the church, which, begun by Richard Justin in 1260, were carried on at intervals by his successors till they were partially destroyed by the fire of 1374. He completed the eastern defences by the addition of the square tower at O on the plan (Fig. 151), in which he built several rooms for the accommodation of his soldiers. The tower is known as the *Tour Perrine*, in memory of its author. We have seen that the abbots gradually became great feudal chieftains; the Abbot of Mont St. Michel was further commandant of the place for the king; and he was empowered to bestow feofs on the nobles of the province, who bound themselves in return to keep guard over the mount in certain contingencies, enumerated in the following rendering of a Latin text:—[1]

"The tenure of these vavassories was by faith and fealty, and their holders were bound to furnish relief and thirteen knights, each of whom was to come in person to guard the gate of the abbey when necessary—that is to say, in time of war; each to keep guard for the space of the ebb and flow of the sea—that is to say, during the rising and falling of

[1] Ed. Corroyer, *Description de l'Abbaye du Mont St. Michel et de ses Abords.*

the tide; and each to be provided with gambeson, casque, gauntlets, shield, lance, and all requisite arms; and further to present themselves thus armed yearly at the feast of St. Michael in September."

In the early years of the fifteenth century he built the gate-house and crenellated curtain which connects it with the *Merveille*, to the north of the guard-room, *Bellechaise* (see Fig. 163, beginning of this chapter). The gate-house was placed in front of the northern façade of *Bellechaise* (D, Fig. 150); an open space between this and the south wall of the new structure formed a wide *machicoulis* for the protection of the north gate (that of *Bellechaise*), which, by the erection of the new building, had been transformed into a second interior entrance. The gate-house or *châtelet* is a square structure, flanked at the angles of the north front by two turrets, corbelled out upon buttresses. In general appearance they resemble a pair of huge mortars standing on their breeches. Between the pedestals of these turrets was the doorway and the inclined vault over the staircase leading to the guard-room. This entrance was defended by a portcullis worked from within on the first story, and by three *machicoulis* at the top of the curtain, between the battlements of the turrets. For the further protection of the gate-house Pierre Le Roy built the barbican which covers it to the east and north, and also commands the great staircase (*Grand Degré*) on the north. He modified the ramparts by the addition of the tower known as the *Tour Claudine* at the north-east angle of the *Merveille*. In the lower story of this tower he constructed a guard-room, the postern of which

communicated with the *Grand Degré*, and by a series of ingenious and unique combinations was so contrived as to command all the approaches.[1]

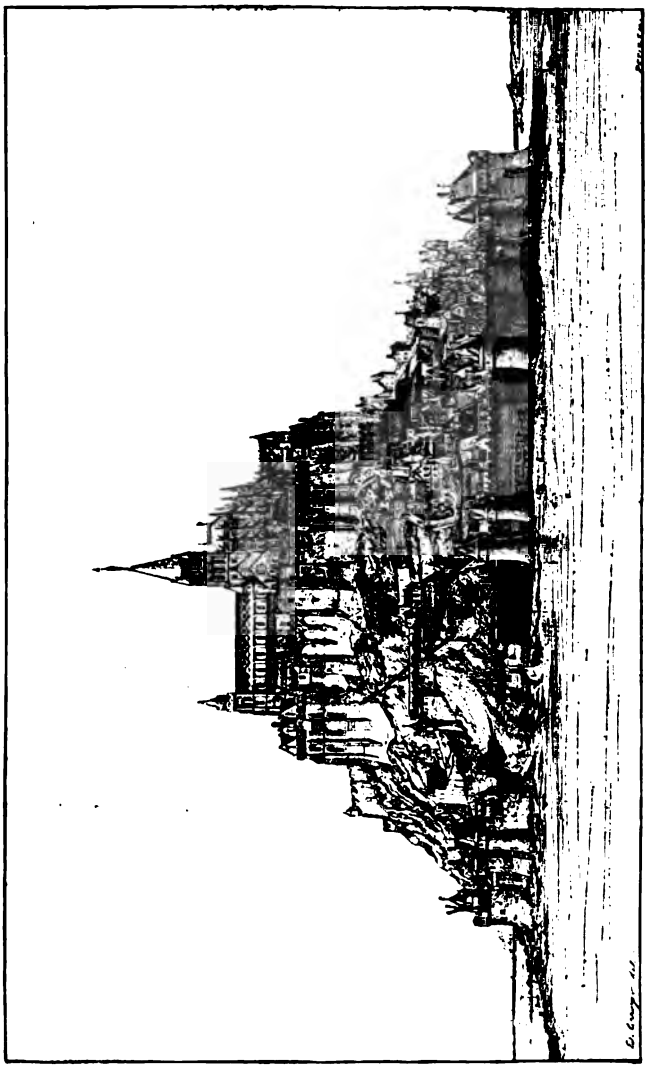
In 1411 the Abbot Robert Jolivet was nominated lord of the abbey by Pope John XXIII. After his election by the monks he was made captain of the garrison by the king, but continued to live in Paris. In 1416, however, he hastened to his abbey, which was threatened by the English, who had possessed themselves of Lower Normandy after the battle of

172. MONT ST. MICHEL. SOUTH FRONT (AS IT WAS IN 1875)

Agincourt in 1415. Whilst the English were busy fortifying Tombelaine, Robert Jolivet completed his walls and certain towers round about the town, which still exist. To meet the expenses of his undertaking the abbot obtained a grant from the king of fifteen hundred *livres* from the revenues of the Viscounty of Avranches, besides a subsidy from the Master of the Mint at St. Lô.

At the time when Robert Jolivet was building

[1] Ed. Corroyer, *Description de l'Abbaye du Mont St. Michel*, etc.; Paris, 1877.



173. MONT ST. MICHEL. FORTIFICATIONS OF THE FOURTEENTH CENTURY (AS RESTORED BY ED. CORROYER)

the new ramparts, from about 1415 to 1420, the town had greatly increased towards the south, and even setting aside the dangerous proximity of the English at Tombelaine, some more extensive system of defence than that afforded by the fortifications of the fourteenth century was imperatively needed to secure the place against attack. Robert Jolivet incorporated his new walls on the east with those of the preceding century, which, following the escarpments of the cliff, descend to the beach, and are protected by the northern tower. These walls he flanked with an additional tower projecting considerably from the surface, which was destined to command the adjoining curtains and protect the main line of his defences. He then carried his walls round to the south of the rock and strengthened them by five other towers. The last of these, known as the *Tour du Roi*, forms the south-eastern projection of the place, and commands the western gate of the town.

The walls and their sloping bases are defended by stone machicolations above, the consoles of which support open crenellated parapets. Several of the towers were roofed, and afforded shelter for the defenders of the ramparts. After leaving the *Tour du Roi* the walls turn off at a right angle and unite themselves to the abrupt declivities of the rock by means of a series of steps and covered ways, commanded by a fortified guard-room. Even the inaccessible peaks of the rock itself are fortified and connected with the defences of the abbey on the south.

At the beginning of the fifteenth century, and still

more notably towards its close, firearms had been successfully used in various sieges, and had made such rapid progress that the whole system of attack and defence was transformed. Towers gave way to bastions, the terraces of which became batteries, while the battlements of the earlier mode were replaced by epaulments. Machicolations which were now merely a traditional decoration at last disappeared altogether, and military science gradually took the place of architecture, for which there was henceforth little scope in this particular field.

CHAPTER II

CASTLES AND KEEPS, OR DONJONS

THE first French castles of the mediæval period seem to have been built for the purpose of arresting invasion and affording shelter to communities decimated by the raids of the Normans. They consisted of simple intrenchments more or less extensive. Surrounded by a *fossé* or ditch formed of earthworks, the scarp of which was defended by a palisade, they had much in common with the camps of the ancient Romans. In the centre of the enclosure rose the *motte* (mote or mound), a conical elevation, either natural to the ground, or artificially formed on the model of the Roman *prætorium*. This was surmounted by a building, generally of wood, which served as a post of observation and a retreat less accessible than the *enceinte* itself.

In these rudimentary dispositions we recognise the germ of those feudal keeps and castles which were such important features of mediæval architecture, notably during the Gothic period.

Defensive works of this nature sprang up at various points of the royal domain which were exposed to the incursions of the Scandinavian pirates;

but the temporary concessions of Charles the Bald were claimed as definitive by those to whom they had been made. "When, therefore, that feeble monarch proclaimed the heredity of the feofs at Quierzy-sur-Oise in 877, he did but sanction that which was already an accomplished fact. . . . When the feudal system was firmly established, the nobles

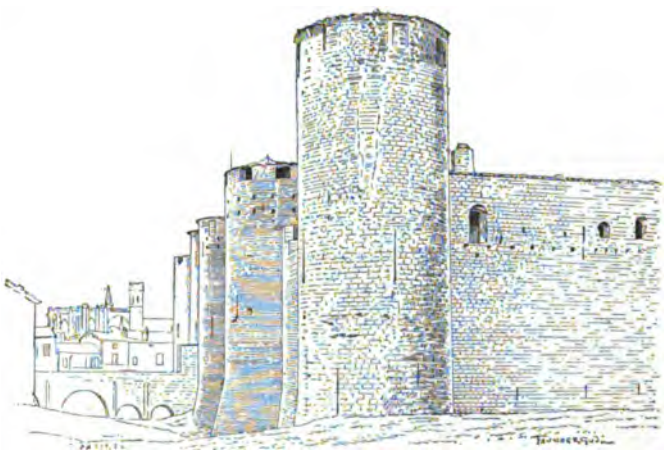
174. CASTLE OF ANGERS

turned their attention to the maintenance of their usurpations alike against the kings of France, strangers, and neighbours. To this end they carefully chose the best strategic positions in their territories, and fortified them in the most durable fashion at their command. The imposts they levied were considerable, and their serfs were subject to endless exactions." [1] Stone castles were accordingly built

[1] Anthyme St. Paul, *Histoire Monumentale de la France.*

which, in general arrangement, adhered to primitive models. In 980 Frotaire had raised no less than five around Périgueux, his episcopal town.

In 991 Thibault File-Étoupe built a fortress on the hill of Montlhéry, near the royal residences of Paris and Étampes, which was very formidable to the first five kings of the house of Capet. Later,



175. CARCASSONNE; CITADEL. VIEW FROM THE NORTH-EASTERN ANGLE. (SEE PLAN, FIG. 167)

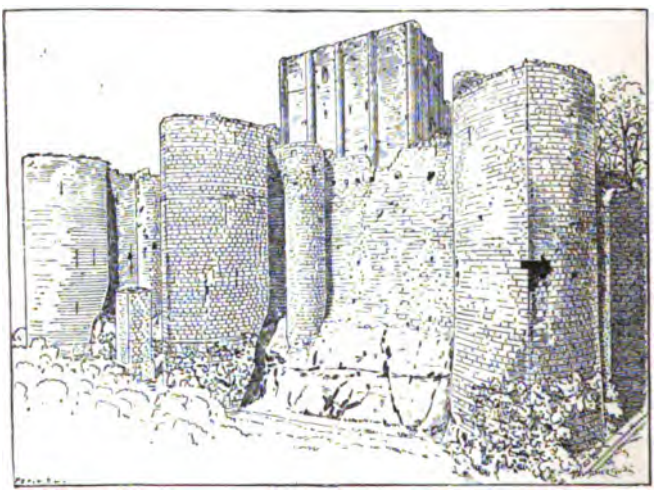
when it became a royal possession, it was one of the chief bulwarks of the city.

In the Middle Ages the castle bore the same relation to the fortified town as did the keep to the feudal castle, and the history of one is bound up in that of the other.

In a fortified town the castle was the lodging of the leader and his soldiers. It was connected with the ramparts of the place, and had one or more

special outlets ; it was further provided with defences on the side of the town itself, so that upon occasion it became an isolated stronghold.

The Castle of Carcassonne is a famous example of such offensive and defensive fortification. It was built in the first years of the twelfth century, and is composed of various lodgings for the chief and his



176. LOCHES CASTLE. KEEP

garrison, defended east and north, on the side towards the city, by towers and curtains (Fig. 175). At the south-west angle independent reducts and towers guard the courtyards and approaches. The west front overlooks the open country, and here was placed the gate, which was defended by a series of formidable devices so ingenious as to preclude all possibility of surprise.

During the Romanesque and Gothic periods the castle was a miniature town, with its own fortified *enceinte*, composed of walls reinforced by towers which served as refuges at various points of the circumference, and formed so many reducts for the arrest of assailants.

The keep was the citadel of this miniature town, the temporary lodging of the lord whose vassals lived in the internal offices, and whose soldiers occupied the gate-house buildings and the towers of the ramparts. The noble sought to give his special habitation the most formidable aspect possible, and thereby to strike terror to the beholder, a very necessary device in those days of conflict when the friend of night was often the implacable foe of morning. "In times of peace the keep was the receptacle for the treasure, arms, and archives of the family; but the lord did not lodge there; he only took up his quarters in the keep with his wife and children in time of war. As it was not possible for him to defend the place alone, he surrounded himself with a band of the most devoted of his followers who shared his dwelling. From thence he exercised a scrupulous surveillance over the garrison and its approaches, for the keep was always placed at the most vulnerable point of the fortress, and he and his bodyguard held the horde of vassals and retainers in due subservience; as they were able to pass in and out at all hours by secret and well-guarded passages, the garrison was kept in ignorance of the exact means of defence, the lord, as was natural, doing all in his power to make them appear formidable." [1]

[1] Viollet-le-Duc, *Dictionnaire*, vol. v.

Castles and keeps of stone were generally built upon the natural scarp of some spur commanding two valleys and near the banks of a river; the primitive mounds of the feudal fortresses were abandoned; as we have already remarked, these were in many cases artificial, and would have been quite inadequate to the support of the huge masses of masonry of the new architecture.

"By the close of the tenth century and the opening years of the eleventh, Foulques Nerra was raising castles throughout his own territories in Anjou, and on every available point of vantage he could wrest from his neighbour, the Count of Blois and Tours; the latter built fortresses to resist the aggressor and complete the network of strongholds begun by his father, Thibault the Trickster, one of the most turbulent nobles of his day."[1]

The keep of Langeais, on a precipitous hill overlooking the Loire, was founded by Foulques Nerra at the close of the tenth century; the walls, which are still standing on three sides, show traces of Gallo-Roman methods of construction; the dressed stones are of small size, and brick and stone are used conjointly for the voussoirs of the window arches.

A large number of castles and keeps were built in the eleventh and twelfth centuries, among others those of Plessy, Grimoult, Le Pin, and La Pommeraye, the last on a mound surrounded by deep moats which separate three lines of circumvallation from each other; Beaugency-sur-Loire, the vast keep of which was four stories high; and Loches,

[1] Anthyme St. Paul, *Histoire Monumentale de la France.*

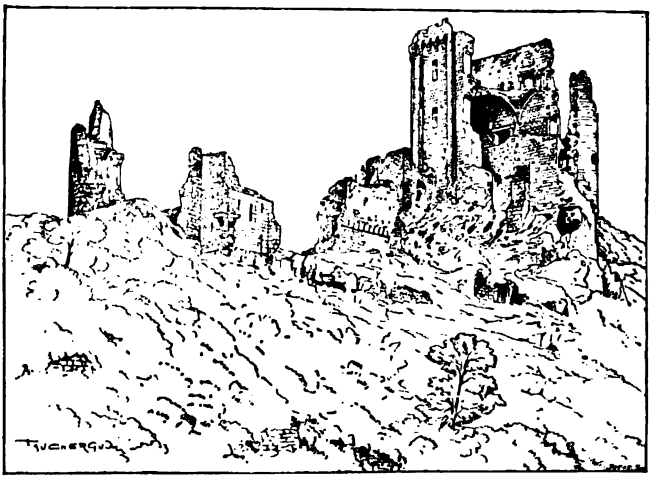
which is ascribed to Foulques Nerra, but which seems to belong rather to the twelfth century, at which period military architecture had made a great advance. The keep of Loches is perhaps the finest of all such structures in France; in height it is nearly 100 feet; the ramparts seem to date from

177. FALAISE CASTLE. KEEP

the thirteenth century; the form of the towers on plan is a pointed arch, a shape adopted as offering greater resistance at the part most frequently attacked by the sapper.

At Falaise, where the castle like that of Domfront is built on a rugged promontory, the ramparts are later than the keep, the architectural details of

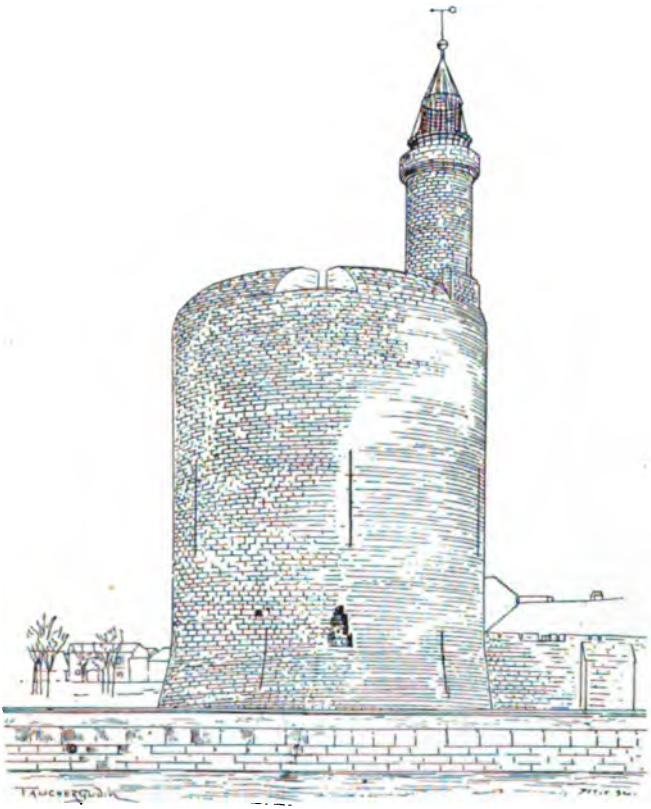
which point to the twelfth century. This hypothesis is supported by a passage in the Chronicle of Robert du Mont, quoted by M. de Caumont. In 1123 Henry II. rebuilt the keep and ramparts of Arques, and carried out similar restorations at Gisors, Falaise, Argentan, Exmes, Domfront, Amboise, and Vernon.



178. LAVARDIN CASTLE. KEEP

Other keeps of equal interest in point of situation, plan, or details of construction are:—Ste. Suzanne, Nogent-le-Rotrou, Broue, L'Islot, Tonnay-Boutonne, Pons, Chamboy, Montbazon, Lavardin, Montrichard, and Huriet in the Bourbonnais. All these, in common with those first described, are square or rectangular on plan. From the end of the twelfth century onwards the cylindrical form

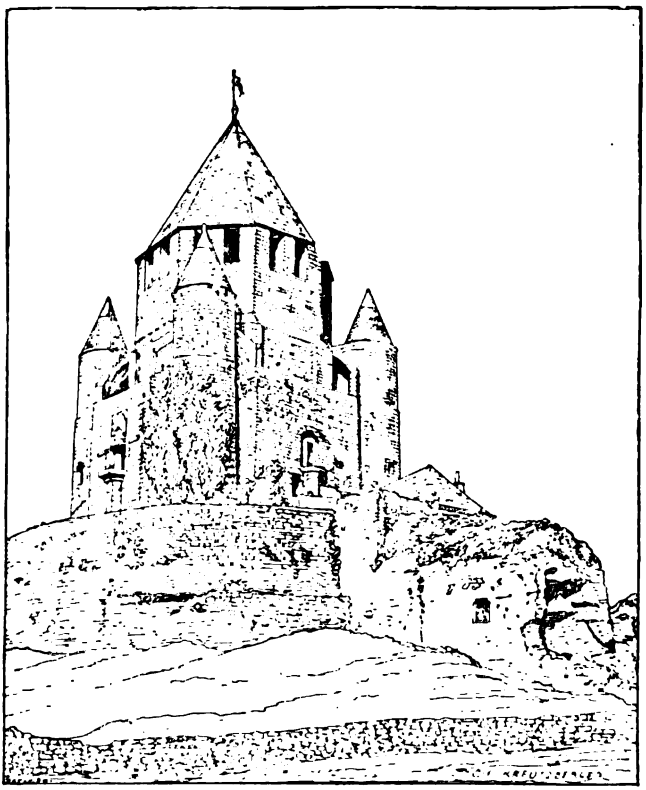
predominates in the plan of keeps and towers. On the whole, it offered the best resistance to the



179. KEEP OF AIGUES-MORTES. TOUR DE CONSTANCE

mediæval assailant. The convex surface was of equal strength all round, and as we have seen in the preceding chapter, the circular trace for towers

gave the garrison the best chance of defending their



180. PROVINS CASTLE. KEEP

bases from the curtain, and of opposing the work of sappers and miners.

The great advance made in architecture by the general adoption of an expedient so simple and

easy of execution as the vault on intersecting arches manifested itself very strongly in military structures. The heavy wooden floors of the earlier keeps, which were so apt to catch fire, were replaced by less ponderous vaults, binding the circular walls firmly together, and forming a flooring for the various stories less unsteady and infinitely more durable than the huge beams and joists of earlier days.

A further improvement was the pointed roof, round on plan, now generally adopted as better calculated to withstand projectiles or combustibles which shattered the angles of the roof in the old square towers, and set fire to the timbers.

The form of keeps, however, varied considerably throughout the twelfth century. At Houdan the keep is a great tower strengthened by four turrets ; at Etampes it is composed of four clustered towers, forming a quatrefoil on plan ; the vaulted stories are marked by many curious features, among others a deep well, the opening of which is in the second floor. Some historians date this building from the eleventh century ; there are indications, however, in the details of the architecture and sculptures, which point to the early part of the reign of Philip Augustus.

The keep of Provins, which belongs to the twelfth century, has certain very original features. It rises from a solid mound of masonry, and has a circular *enceinte*. The base of the keep itself is square, and is flanked at each angle by a turret. An octagonal tower surmounts the square base, and is connected with the flanking turrets by flying buttresses. The keep of Gisors is also octagonal in form, one of its octagons being at a tangent to the circular *enceinte*

which crowns the feudal *motte* or mound. It was built in the twelfth century, and was considerably augmented by the line of walls and square towers which Philip Augustus drew round the mound.

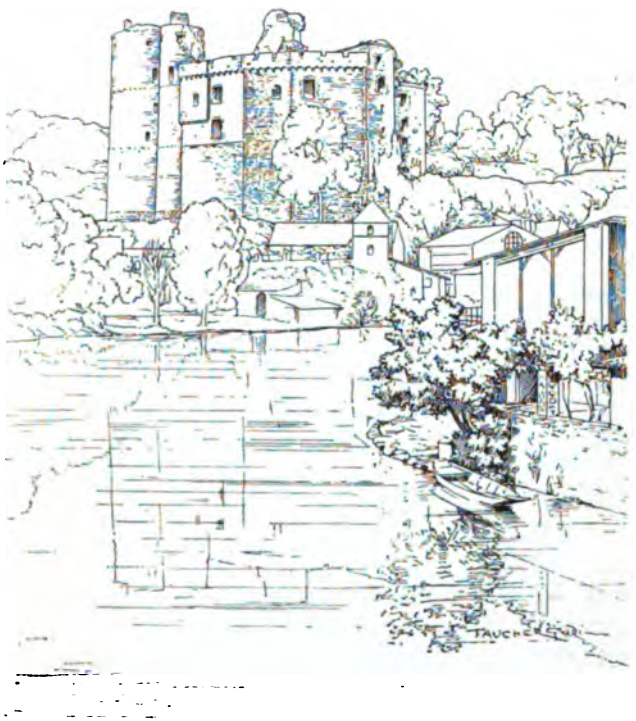
The *Château Gaillard*, built at the close of the twelfth century on an eminence commanding the Seine at Les Andelys, has several peculiarities of arrangement. The round keep is first enclosed by a circular *enceinte*, or rather by a square, the angles of which have been rounded. This in its turn is

181. CASTLE OF CHINON. SOUTH FRONT

surrounded by an elliptic enclosure connected with the defences of the castle, and consisting of a series of segmental towers united by very narrow curtains. In this massive structure the art of the architect manifests itself only in the robust solidity of the masonry. It is the keep in its purely military character. No trace of decoration mitigates its austerity.

Philip Augustus, having possessed himself of the Château Gaillard, fortified Gisors on the same formidable scale, and proceeded to build the castle of Dourdan as well as his own palace fortress of the

Louvre, in Paris. Upon the death of the king, Enguerrand III. began to build a fortress at Coucy, which he completed in less than ten years (1223-

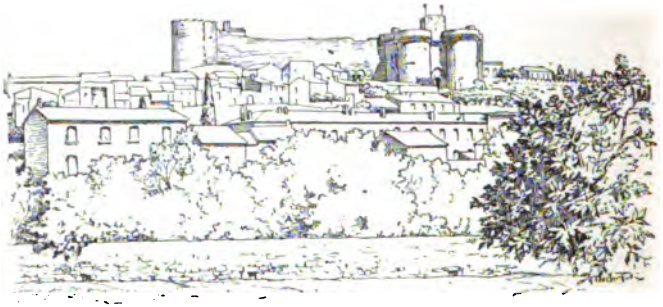


182. CASTLE OF CLISSON. KEEP

1230). Its grandiose proportions and formidable system of defence surpassed everything that had gone before. Coucy was, in fact, the architectural manifestation of that haughty ambition to which Enguerrand

is said to have given free expression during the minority of his sovereign.

Next in importance to the castles and keeps of the thirteenth century, already enumerated, are the following:—The White Tower of Issoudun; the Tower of Blandy; the octagonal keep of Châtillon-sur-Loing, Semur; the royal fortresses of Angers, built by St. Louis; Montargis, Boulogne, Chinon, and Saumur; the *Tour Constance* or keep of Aigues-Mortes, ascribed to St. Louis; the castle of Najac,

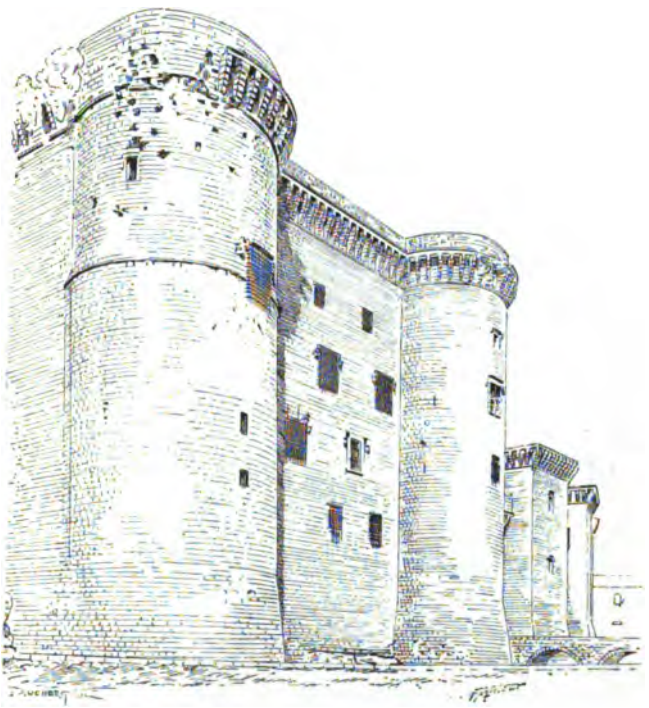


183. VILLENEUVE-LES-AVIGNON. CASTLE OF ST. ANDRE

built by his brother, Alphonse of Poitiers; the castles of Bourbon l'Archambault and Chalusset, and the castle of Clisson, rebuilt or begun by Olivier I., Lord of Clisson, after his return from the Holy Land, etc.

In the fourteenth century military architecture developed chiefly on reconstructive lines. Ancient fortresses were reorganised in accordance with the new methods of attack and (consequently) of defence, and the weak points brought to light by recent sieges were dealt with. The same process was

applied to the construction of towers which had hitherto been furnished with several rows of loop-holes, an excellent expedient for the defence of



184. CASTLE OF TARASCON

curtains and approaches, but subject to this drawback, that it directed attention to the most vulnerable points. The first effect of the use of cannon in warfare was to increase the thickness of the walls; subsequently, such structural modifications were

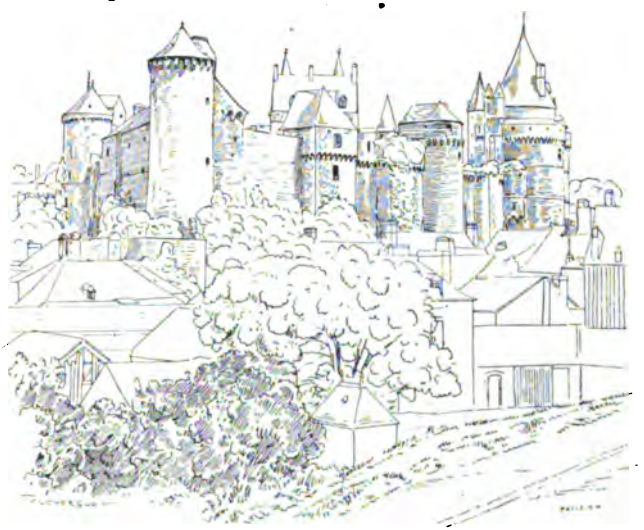
adopted as were required by the novel method of massing all the defences at the summit of machicolated walls. The principal castles of this period were Vincennes, near Paris, built by Philip of Valois and Charles V., and the vast fortified palace at Avignon, constructed by the Popes Benedict XII., Clement VI., Innocent VI., and Urban V., of which we shall have more to say in Part IV. Gaston Phœbus, Count of Foix and Béarn, built square keeps in the *Bastide* of Béarn, at Montaner, and at Mauvezin, besides circular keeps at Lourdes and at Foix.

Among keeps and castles completed or entirely built in the fourteenth century, Anthyme St. Paul enumerates those of Roquetaillade, Bourdeilles, Polignac, Briquebec, Hardelot, Rambures, Lavardin (the foundations of which were laid in the twelfth century), Montrond, Turenne, Billy, Murat, and Hérisson, the curious keep of Montbard, the keeps of Romefort, Pouzauges, Noirmoutier, and many others.

At the end of the fourteenth and beginning of the fifteenth century Louis of Orleans, son of Charles V., took advantage of the madness of his brother Charles VI. to fortify various positions on which he relied for the furtherance of his ambitious schemes. In 1393 and the years immediately following he acquired various estates in Valois: Montépilloy, Pierrefonds, and La Ferté-Milon, the castle of which he rebuilt entirely. He also bought the domain of Coucy in 1400, after the death of the last male descendant of Enguerrand III.

Coucy, Pierrefonds, and La Ferté-Milon have

been so exhaustively described in special works, notably those of Viollet-le-Duc, that we need not reproduce them here. We have cited them as characteristic types of those colossal fortresses and keeps, admirable alike in grandiose proportion and refinement of detail which are the supreme expression of feudal power.



185. VITRÉ CASTLE

Several other castles were built in Albigeois, Auvergne, Limousin, Guyenne, La Vendée, and Provence, notably at Tarascon. The keeps of Trèves in Anjou also date from this period.

Important castles sprang up all over Brittany in the fifteenth century. Such were Combourg, Fougères, Montauban, St. Malo, Vitré, Elven, Sucinio, Dinan, Tonquédec, etc.

Many of these buildings which date from the close of the century were remarkable for their ingenuity of arrangement and richness of decoration. But though worthy of all attention from the artistic point of view, they do not come within the scope of our present study—that of *military* architecture in the Gothic period.

CHAPTER III

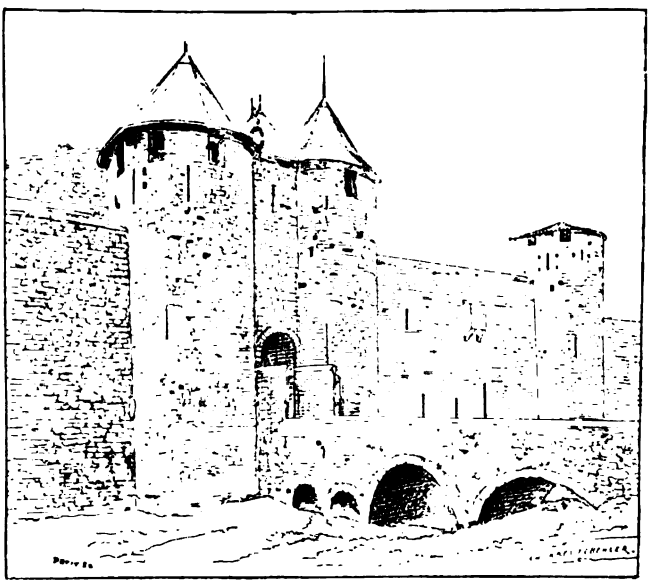
GATES AND BRIDGES

THOUGH confining ourselves to a brief historical abstract of the so-called Gothic period in architecture, without reference to Roman examples, we have said enough in the foregoing studies on castles and keeps, and the circumvallation of towns, to give some idea of the importance attached by architects to the gates which secured the *enceintes*, and the bridges which afforded an approach.

Gates.—Following the example of those Frankish architects whose works in Syria after the first Crusade seem to have exercised such far-reaching influence, French builders of the reigns of Philip Augustus and St. Louis reduced the entrances of fortresses and fortified *enceintes* to the smallest number practicable. Their construction was based upon a system calculated to repulse any ordinary attempt to carry the place by direct attack; as a rule, fortresses were taken rather by ruse, surprise, or treason than by regular siege.

During the twelfth, and more especially the thirteenth century, the gates were the points most strongly fortified. They were approached over a

bridge, by raising a movable portion of which, however, entrance might be barred on the very threshold. The narrow gateway passage was defended by two projecting towers pierced with loopholes, and connected by a curtain. The whole structure formed a



186. CITY OF CARCASSONNE. GATE-HOUSE OF THE CASTLE

fortified gate-house, known as a *châtelet*, which had to be carried before an assailant could penetrate to the fortress beyond. The passage was further defended by a single or double portcullis, a grated timber framework like a harrow, cased with iron, the uprights of which were spiked at the bottom. The passage was also defended by machicolations or

holes in the roof, through which the garrison could hurl down missiles on the heads of their enemies, should the latter have forced the gate.

The castle-gate of Carcassonne which was built about 1120 still exists, and is a good example of such arrangements.

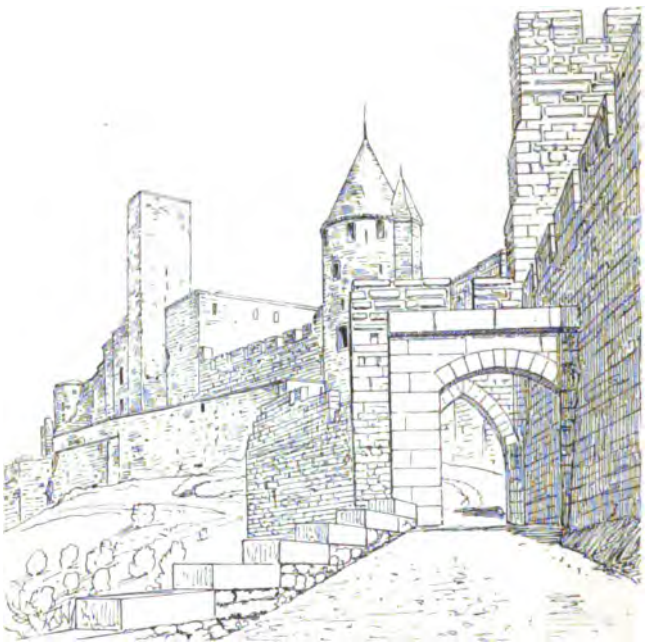
The minute precautions adopted by architects to guard against surprise are very manifest in this example. A sudden attempt was often successful, especially if favoured by traitors among the defenders themselves.

The difficulties of passage were increased by the multiplication of portcullises, the windlasses of which were worked from different stories of the tower, so as to prevent collusion between different parties of the garrison, which was often composed largely of mercenaries. In the gate-house of Carcassonne the first portcullis was raised or lowered by means of chains and counter-weights worked from a windlass on the second floor; the second portcullis was worked in like manner from the first floor, in a place entirely cut off from communication with that above, to which access could only be obtained by a wooden staircase in the castle courtyard.

In the thirteenth century military architects further provided against surprises by defensive outworks. The gate of Laon, at Coucy, so admirably described by Viollet-le-Duc, is a famous example. These outworks, which were called barbicans, were designed to protect the great gate and its approaches.

Around the walls of the city of Carcassonne a second line of ramparts had been drawn by St. Louis, in which only a single opening gave access to

the *lists* (Fig. 187)—that is to say, the space between the inner and outer enclosures. He afterwards built a huge tower, known as the *Barbican*, to the west of the castle, with which it was connected by



187. CARCASSONNE. GATEWAY OF THE LISTS, KNOWN AS THE *PORTE DE L'AUDE*

crenellated walls, and by inner cross-walls, so arranged in a kind of echelon that the open spaces on one side were masked by the projections on the other (see plan, Fig. 167). The tower was destined to cover sorties from the garrison, and to keep open communication by the bridge across the

Aude. It was rather an outwork than a barbican such as Philip the Bold built before the *Porte Narbonaise*, on the east of the city, towards the close of the thirteenth century.

The *Porte Narbonaise* bears a general resemblance to the main gate of the castle, subject, however, to the great advance made in military architecture in the course of a century. The gateway towers are pro-

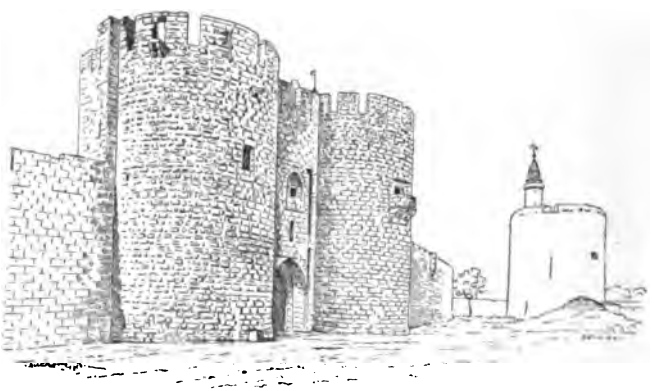
188. CITY OF CARCASSONNE. GATE KNOWN AS THE *PORTE NARBONAISE*

vided with spurs, an invention directed against the attack of miners, which had the further advantage of interfering with the action of a battering-ram, by exposing those who worked it to missiles from the adjacent parts of the curtain. The gate opened immediately upon the lists; it was defended by the crenellated semi-circular barbican, which was united on either side to the embattled parapet of the lists. Access to the barbican was obtained only by a narrow passage preceded by a bridge, the latter

easily defended by a redan which adjoined the postern of the barbican.

The gate itself was provided with two portcullises like those of the castle gate; behind the first were massive folding-doors, and over it a wide machicolation.

The constructive methods employed in the building of fortified gates were modified as military architecture progressed on lines already considered

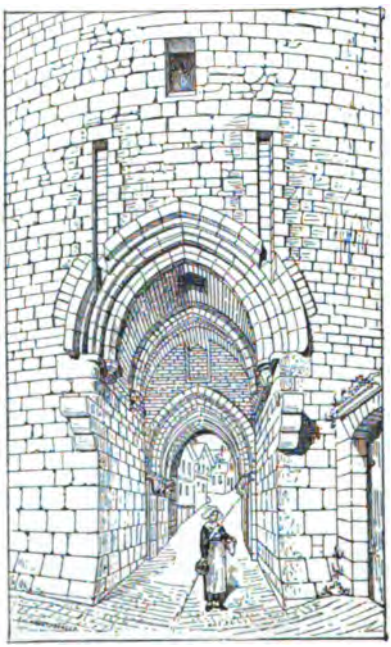


189. RAMPARTS OF AIGUES-MORTES. GATE KNOWN AS THE *PORTE DE LA GARDETTE*. DRAWBRIDGE. (TO THE RIGHT OF THE DRAWING THE *TOUR CONSTANCE*, BUILT BY ST. LOUIS)

by us in the first chapter of this section, when dealing with defensive methods generally, which, in the fourteenth century, seem to have been in advance of those of attack. A steady improvement in details went on until the invention of gunpowder came in to profoundly modify the conditions alike of defence and assault.

The gateways of fortified *enceintes* were modified in the fourteenth century not only by alterations in

the plan of towers, the substitution of stone machicolations for the wooden *hourds* or scaffoldings of parapets, the addition of portcullises, folding-doors, and the *machicoulis* of the vaulted passage, but further by the invention of the drawbridge. A drawbridge, it may be hardly necessary to say, consisted of a wooden platform suspended by chains to cross-beams poised on uprights on the principle of a see-saw; when lowered, the bridge afforded a passage across the moat. It was raised by depressing the inner ends of the lever-beams which pivoted upon a fulcrum, and thus brought the platform up vertically against the front of the building, where it formed an outer door which an attacking party had either to batter in or to bring down by cutting the chains.



190. RAMPARTS OF DINAN. GATE KNOWN AS THE *PORTE DE JERZUAL*

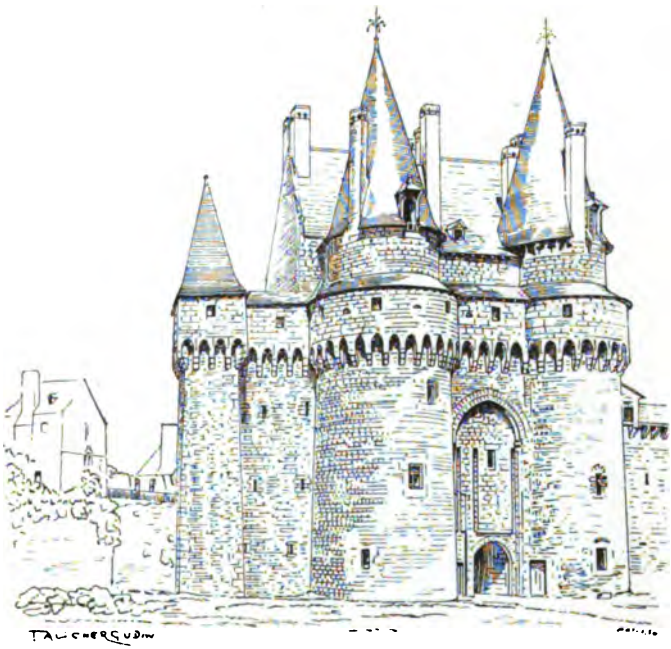
It will be readily perceived that such a bridge was infinitely more effectual and more to be depended

upon than the portable bridge mentioned in our description of the castle gate of Carcassonne. The latter had to be raised piece by piece, a prolonged operation impossible of execution in case of a sudden surprise.

Aigues-Mortes seems to have been one of the first fortresses to which the new methods were applied. The gates east, west, and south are constructed on the twelfth-century system, as exemplified at Carcassonne. But the northern gate, known as the *Porte de la Gardette*, which was either made or altered in the fourteenth century, still shows the grooves for the beams of the drawbridge, and the pointed arch of the doorway is enframed by a square rebate destined for the platform when raised.

The use of drawbridges became very general in the fourteenth century, and gave rise to various ingenious combinations. The gate at Dinan, known as the *Porte de Jerzual*, which probably dates from the close of the century, is a curious example. It is not placed between two towers in the manner then usual, but is pierced through the actual face of a tower. In this case, the inner prolongation of the lever-beams formed a solid panel like the platform of the bridge itself. It was worked through a hole in the roof of the entrance archway, being raised with the help of a chain, and falling through its own preponderant weight. The horizontal pivot on which it turned rested on the brackets shown in Fig. 190; the external sections of the lever-beams sank in the usual manner into the vertical grooves above the arch, and when the bridge was up, the solid panel joining the inner ends of the levers

doubled the protection it gave. In case of alarm, the chain had simply to be let go, and the panel falling by its own weight, the bridge rose, and the barricade was complete.



191. VITRÉ CASTLE. GATE-HOUSE

By the fifteenth century drawbridges were in universal use; an interesting development was the result. This was the introduction of a smaller gate or postern in the curtain between the towers, by the side of the great gateway. Each of the two apertures was furnished with its own drawbridge.

That of the centre, which was reserved for horsemen and vehicles, was worked by two beams or arms, as we have seen, while the smaller footbridge of the postern was raised by means of a single beam, the chain of which was attached to a forked upright.

192. ENCEINTE OF GUÉRANDE. GATE OF ST. MICHEL

The castle of Vitré, which was built, or at least completed at the close of the fourteenth or beginning of the fifteenth century, illustrates the system in the gateway of its *châtelet*.

The gate-house, known as the *Porte St. Michel*, at Guérande, which was built together with the *enceinte* by John V., Duke of Brittany, in 1431, still

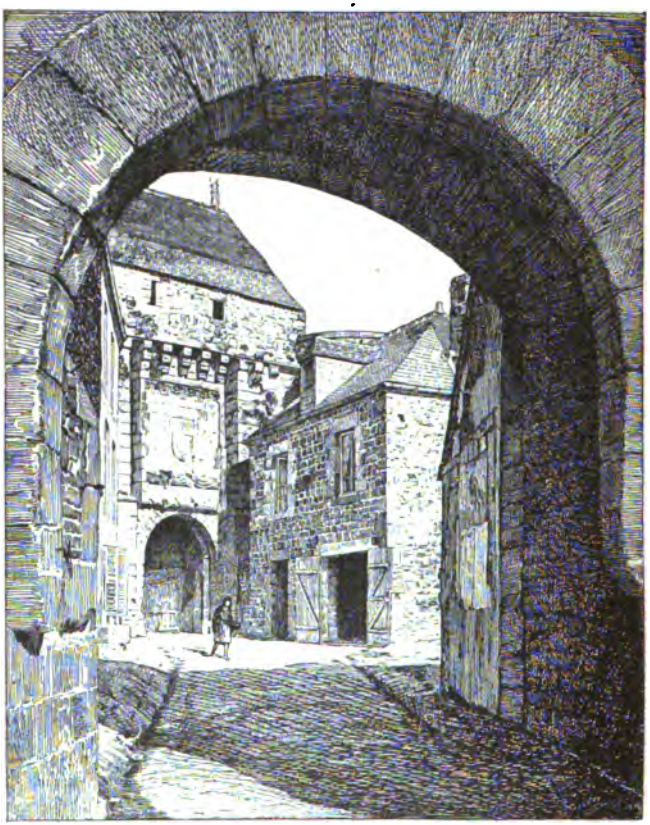
preserves the lateral grooves which indicate the shape and arrangement of the postern drawbridge.

When raised, the two drawbridges closed the apertures of gateway and postern, while the open gulf of the great ditch, either empty, or full of water, cut off the approach to the entrance.

The Abbey of Mont St. Michel, which we have already studied under various aspects, has further information to give us with regard to the construction of fortified gateways. In accordance with contemporary usage, the Abbot Pierre Le Roy built a gate-house or *bastille* (Fig. 163), the entrance of which was guarded by a portcullis and a wide *machicoulis*; he masked this gate-house by a barbican, which was connected north and south with the great stairway leading to the abbey. The northern staircase is rendered specially interesting by the ingenious arrangement of its gates, which opened within the barbican. The apertures were filled by a panel which worked horizontally, on a system necessitated by the exceptional situation of the abbey, where the military, as well as the domestic buildings, were superposed, communicating with each other only by an elaborate series of staircases and inclines. The doors pivoted upon horizontal axes. Resting upon salient jambs in the embrasures of the doorways, they opened in a direction parallel with the slope of the steps, and could be shut at the least alarm, being carried into place by their own weight. They were kept fastened by lateral bolts, the slots of which still exist in the jambs.[1]

[1] Ed. Corroyer, *Description de l'Abbaye du Mont St. Michel et de ses Abords*; Paris, 1877.

The main gate of the ramparts, which was built between 1415 and 1420, is to the west of the place,



193. RAMPARTS OF MONT ST. MICHEL. GATEWAY KNOWN AS THE *PORTE DU ROI*

in the curtain flanked by the tower known as the *Tour du Roi.* This gate and the lateral postern

gave access to the town, their drawbridges forming a passage across the moat when lowered, and when raised, an initial barrier to assailants. Above the gates was the warder's lodging, beneath which the vaulted passage and the postern communicated directly with an outer guard-room in the ground-floor of the *Tour du Roi.* In addition to the first barrier, formed by the raised platform of the drawbridge, the main entrance was secured by double doors, and by an iron portcullis, which still remains in its lateral grooves. The great arch is crowned by a tympanum, on which the united arms of the king, the abbey, and the town were carved.

The works designed for the defence of rivers flowing through fortified towns, or of the inlets of harbours, are closely allied to the military architecture of gates. At Troyes the river arches in the town ramparts were guarded by gratings or portcullises of iron. At Paris the passage of the Seine was barred by chains stretched across the river from wall to wall, and upheld in the middle of the stream by piles or firmly anchored boats. At Angers the walls of the town abutted on two towers known as the *Haute Chaîne* and the *Basse Chaîne* (the Higher and Lower Chains), containing windlasses for the chains, which at night were stretched across the Maine at its passage through the *enceinte.*

Seaports were defended at the mouth by towers on either shore, between which chains, worked from within, could be stretched to bar the passage. The harbour of La Rochelle is thus protected. According to some archæologists of authority, the tower known as the *Tour de la Chaîne* (to the left of the drawing) is

older than that of St. Nicholas (on the right), which is supposed by them to have been built in the sixteenth century on the foundations of an earlier tower contemporary with that on the other side of the Channel. The piles upon which these towers stand seem to have given way in part, and to have caused a perceptible inclination of the Tower of St. Nicholas.

The suggestion made in a very fanciful modern design, that the two towers were once united by a

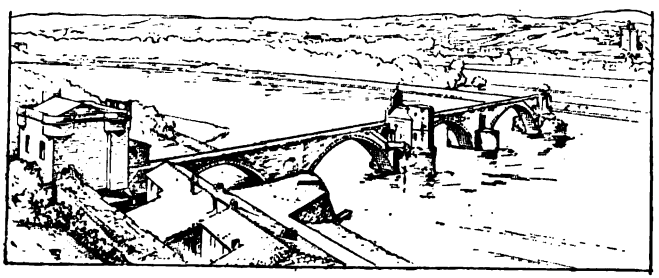
194. ENTRANCE TO THE PORT OF LA ROCHELLE. TOWER OF ST. NICHOLAS, AND TOWER CALLED *TOUR DE LA CHAÎNE*. BEFORE THE RESTORATION

great arch, is wholly without foundation. Such a useless structure would have entailed defensive works equally useless, seeing that a chain stretched from tower to tower at high tide—at low tide the harbour was inaccessible—would have been perfectly effectual against any vessels of that period attempting to force a passage.

Bridges. — As is the case with all other architectural buildings, the origin of bridges dates back to the Romans, by whom they were often decorated with triumphal arches. The bridge of St. Chamas

in Provence, known as the *Pont Flavien* (Flavian Bridge), is an example which seems to date from the first centuries of the Christian era.

The triumphal arches were in later times replaced by fortifications; they became *têtes de pont*, *bastilles*, or crenellated gate-houses, the function of which was not, like that of the arches, the decoration of the structure or the glorification of its founder, but the defence of the passage across the river, and the



195. BRIDGE AT AVIGNON. RUINS OF THE BRIDGE KNOWN AS THE PONT DE ST. BÉNÉZET

protection of the fortress with which it communicated.

Among the bridges constructed by mediæval architects, that of St. Bénézet, the Bridge of Avignon, seems to be the most ancient. This bridge, which was begun about 1180, and completed some ten years later, is equally remarkable for its architectural details, and the structural problems solved by its builders. It crosses, or rather used to cross, the Rhone—for though the arm towards the *Rocher des Doms* is the narrower, it is the deeper—on nineteen arches, extending from the foot of the Doms, on the

Avignonese bank, to the Tower of Villeneuve, on the right bank, after a slight deflection southward.

The gate-house on the left bank, some fragments of which still remain, is said to have been built by the Popes in the fourteenth century, for the purpose of levying tolls, a perquisite shared by them with the King of France.

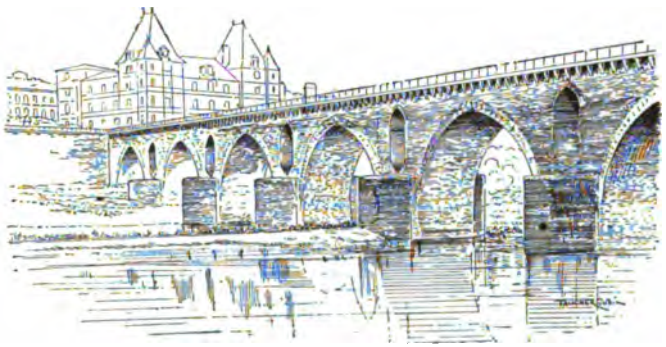
The Bridge of Avignon seems to have been one of the first constructed by the fraternity of the *Hospitaliers pontifs*, which was founded in the twelfth century for the double object of building bridges and succouring travellers. The head of the order at the time of the building of the Rhone bridge was St. Bénézet. It must have numbered architects of ability among its members, for the construction of the Bridge of Avignon is very remarkable. Each of the elliptical arches is composed of four independent arches in simple juxtaposition one with another. This device ensures elasticity, and as a consequence stability. The solidarity of the whole is rendered complete by the masonry of the spandrils, which recall the architectural portions of the aqueduct, known as the *Pont du Gard*; its width is about 16 feet. The arches spring from piers furnished on either face with acute spurs designed to break the force of the stream and the impact of floating ice in the winter.

The spandril above each pier is pierced with a round arch, to give free passage to the water during those floods which at times completely submerge the piers.

The bridge in its present ruined condition has only four arches. On the pier nearest to the left

bank the ancient chapel, dedicated to St. Nicholas, is still standing. Access to it is obtained by means of a flight of corbelled steps rising from the foundation to the entrance, and by an overhanging landing-stage, resting at one end against the pier, at the other against the flank of the arch.

The old bridge at Carcassonne seems to be contemporary with that of Avignon, but its arches are



196. BRIDGE OF MONTAUBAN, KNOWN AS THE *PONT DES CONSULS*

semicircular, their keystones are bound into the intrados, and their piers are spurred to the level of the platform, where they form recesses or refuges, which the narrowness of the bridge rendered very necessary.

Among bridges of the thirteenth century we may mention that at Béziers, where the arches, both pointed and semicircular, resemble those of Carcassonne in construction; but here the piers only rise above the summers of the arches by the height of two or three courses, and their spandrils

are pierced to give free passage to the current during floods.

The bridge which spanned the Rhone at St. Savournin du Port, known as the *Pont St. Esprit*, was the work of a Clunisian abbot about 1265. It resembled the Bridge of Avignon in the construction of the piers with their pierced spandrils; the arches, however, were semicircular. The platform, which is some 16 feet across, was barred at either end by toll-gates; that nearest to the little town was connected with the *tête de pont*, which, in after times,

197. BRIDGE OF CAHORS, KNOWN AS THE PONT DE VALENTRÉ

was incorporated with the fortress commanding the course of the Rhone above the bridge.

The question of tolls was an important one in those days, and gave rise to frequent disputes. The towers and gate-houses of bridges were toll-bars as well as defensive outworks.

The bridge at Montauban, known as the *Pont des Consuls*, which was begun at the close of the thirteenth century, remained unfinished till the beginning of the fourteenth, when Philip the Fair gave such help as was needed for its completion, on condition that he should be allowed to raise three towers on the bridge, with a view to the appropriation of the tolls.

The Bridge of Montauban is built entirely of brick. It consists of seven pointed arches, resting on spurred piers, which are pierced with arches, also pointed, and rising to the same height as the main arches, to provide for the frequent floods of the Tarn.

The Bridge of Cahors is one of the most beautiful of fourteenth-century examples. It is still of

198. BRIDGE OF ORTHEZ

great interest in spite of the various restorations it has undergone, chiefly of late years.

This bridge, which is known as the *Pont de Valentré*, was begun in 1308 by Raymond Panchelli, Bishop of Cahors from 1300-1312, and cannot have been finished before 1355. It consists of six slightly pointed arches; the piers, which rise to the level of the parapet, forming lateral refuges, are triangular above bridge and square below. At each end the bridge was commanded by a crenellated

structure, forming a gate-house or *tête de pont* on

199. ABBEY OF MONT ST. MICHEL. FORTIFIED BRIDGE CONNECTING THE LOWER CHURCH WITH THE ABBEY

either bank. In the middle rose a lofty tower with

gates, by means of which passage might be barred and assailants checked in the event of a surprise of either gate-house.

The Bridge of Orthez has strong affinities with that of Cahors. It must date from about the same period, and there is every reason to suppose it was defended, not only by the central tower, but by *têtes de pont*, one of which at least must have been destroyed to make way for the railroad from Bayonne to Pau.

Bridges were of great importance in the Middle Ages, both as public highways and military outworks. At certain points, notably at the confluence of two rivers, they were strongly reinforced by very considerable defences, as at Sens, Montereau, etc.

At Paris, Orleans, Rouen, Nantes, and a large number of other towns traversed by rivers, bridges were not only important as military defences, but of great interest as architecture.

Mont St. Michel shall furnish us with our last example, a bridge of the fifteenth century. Though it spans no stream, it is none the less remarkable. In the details of this bridge—its embattled platform uniting the lower church to the abbey, its machicolated parapet guarding the inner passages—we recognise an art consummate as that which stirs our enthusiasm in the vast proportions and perfect execution of the splendid choir, the whole proclaiming the versatile genius of those great builders who welded into one noble monument a triad of masterpieces—religious, monastic, and military.

PART IV

CIVIL ARCHITECTURE

CHAPTER I

BARNS, HOSPITALS, DWELLING-HOUSES, AND "HÔTELS" OR TOWN-HOUSES OF THE NOBILITY

CIVIL architecture could boast no special characteristics before the close of the thirteenth century. Its earlier buildings bore the impress of religious and monastic types, as was natural at a period when architecture was practised almost exclusively by monks and by the lay disciples trained in their schools.

It was not until the following century that domestic architecture threw off the trammels of religious tradition, and took on the character appropriate to its various functions. Artists began to seek decorative motives in the scenes and objects of daily life, no longer borrowing exclusively from sacred themes, and convention in form and detail was abandoned in some degree for the study of nature.

Barns.—Throughout the Romanesque and Gothic periods, barns, hospitals, and houses were constructed in the prevailing style. We propose, of course, to deal only with buildings possessing real architectural features.

The barns or granaries of mediæval times were rural dependencies of the abbeys, but were built

200. TOWN-HALL AT ST. ANTONIN (TARN ET GARONNE). THE UPPER PART OF THE BELFRY WAS REBUILT ABOUT 1860

outside the enclosure of the monastery proper, and formed part of the *priory* or farm. The entrance of the barn was a large door, opening upon the yard

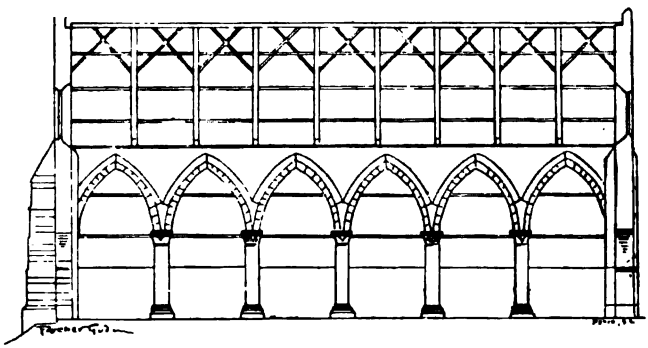
in the centre of the front gable end; access was also obtained by means of smaller doors in the side walls, and often a postern was constructed beside the main entrance for ordinary use. The great central doors were then only thrown open for the

201. BARN AT PERRIÈRES (CALVADOS). END OF TWELFTH CENTURY. (AFTER CAUMONT)

passage of carts, which, entering at the front, passed out through a similar door in the opposite gable end, as at the barn of Perrières, which, though situated in Normandy, was a dependency of the Abbey of Marmoutier, near Tours.

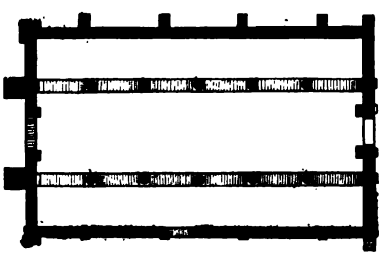
Such barns were generally large three-aisled

buildings, the central aisle divided from those on either side by an arcade, or pillars of wood or stone, which supported the pointed timber roof covering the whole.



201A. BARN AT PERRIÈRES. SECTION

In some of these barns it was the practice to pile wheat, barley, or rye in the centre and in one of the side aisles; in others the central aisle was kept free for passage, and the grain was stored in the sides.

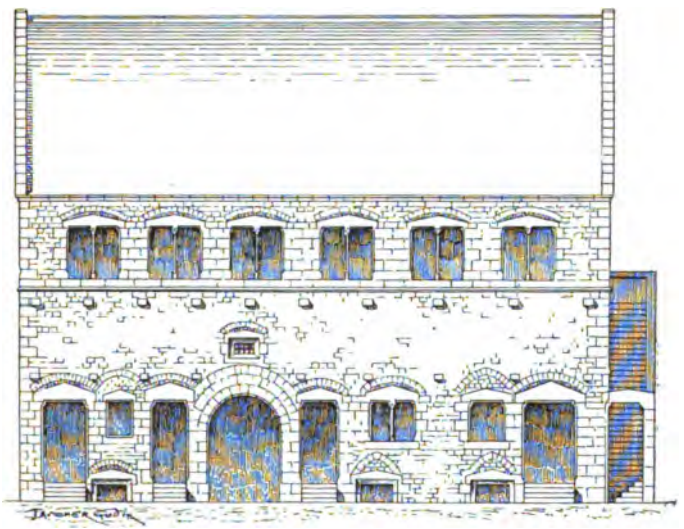


201B. BARN AT PERRIÈRES. PLAN

The façades differ only in unimportant details. They consist of vast gable ends, following the lines of the roof, and strengthened by pilasters. A large doorway, with a small postern to the side of it, occupies the centre of the base, and the apex is pierced with narrow openings to light, or rather to ventilate, the interior.

Tithe-barns were very generally constructed on this plan. When large and important they had two stories, as at Provins.

These were not as a rule vaulted, but the granaries, or *greniers d'abondance*, were often built with three stories, that of the ground-floor, and even

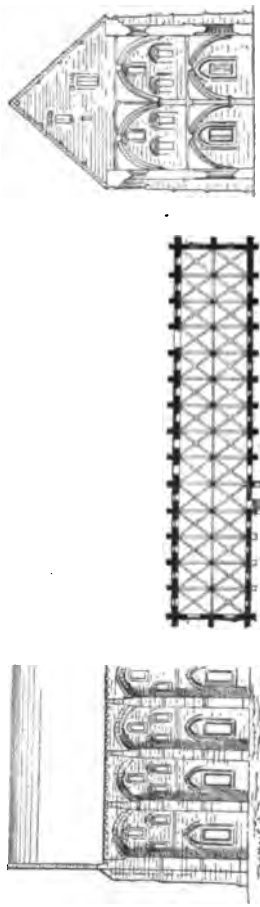


202. TITHE-BARN AT PROVINS

the one above it, being vaulted. The granary of the Abbey of Vauclair, in the department of Aisne, built towards the close of the twelfth century, is a very interesting example of such structures.

Some idea of the importance of religious establishments at this period may be gathered from the foregoing details. The great abbeys were miniature towns, and their dependencies, the priories, con-

sisted of vast farms, round which large villages soon grew up. The cultivators of these great holdings combined agricultural labours with their religious exercises, and the priors in especial were not only priests, but perhaps even in a greater degree stewards or bailiffs, whose duty it was to collect payments in kind, such as tithes or other revenues, to store these, together with the crops of their own raising, and finally to administer the wealth of every description—lands, woods, rivers, and ponds—belonging to the abbey.

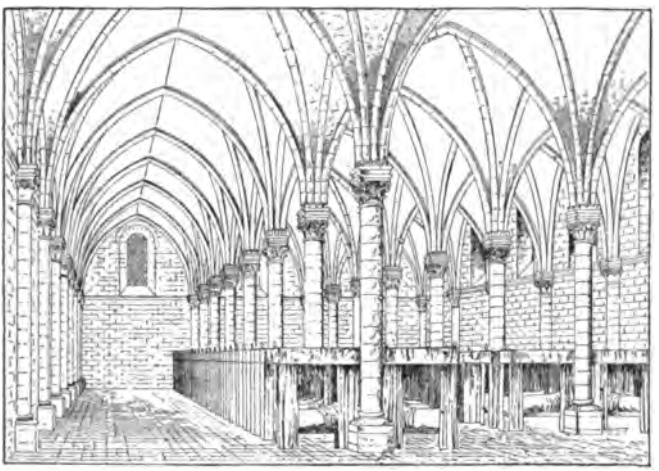


203. GRANARY OF THE ABBEY OF VAUCLAIR

Hospitals. — A large number of charitable institutions, called in the Middle Ages *maisons dieu*, *hôtels dieu*, hospices, hospitals, and lazar-houses, were founded in the eleventh century, and greatly developed in the twelfth and thirteenth.

A hospital was attached to most of the large abbeys or their dependencies. The cities also owned hospitals founded or served by monks.

Lazar-houses had multiplied throughout Western Europe by the end of the twelfth century, from Denmark to Spain, from England to Bohemia and Hungary; but these buildings gave little scope to the architect. They consisted merely of an enclosure surrounding a few isolated cells, and a chapel,



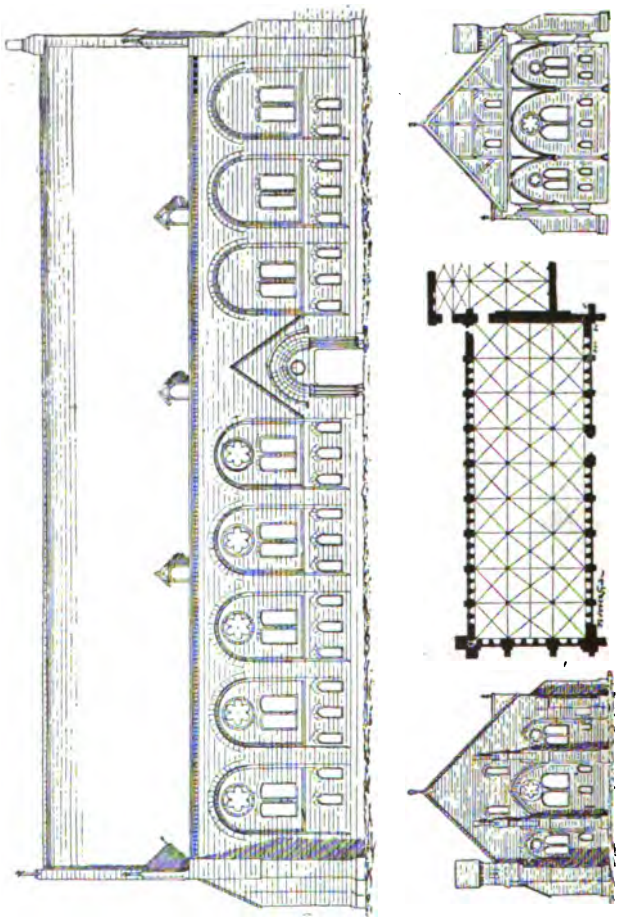
204. HOSPITAL OF ST. JOHN AT ANGERS (TWELFTH CENTURY). GREAT HALL, AS RESTORED BY A. VERDIER

attached to which were the lodgings of the monks who tended the lepers.

But many of the hospices or hospitals built from the end of the twelfth to the fourteenth century are magnificent buildings, in general arrangement much resembling the great halls of the abbeys.

It must be borne in mind that hospitality in the Middle Ages was obligatory; each monastery, therefore, had its eleemosynary organisation, which included

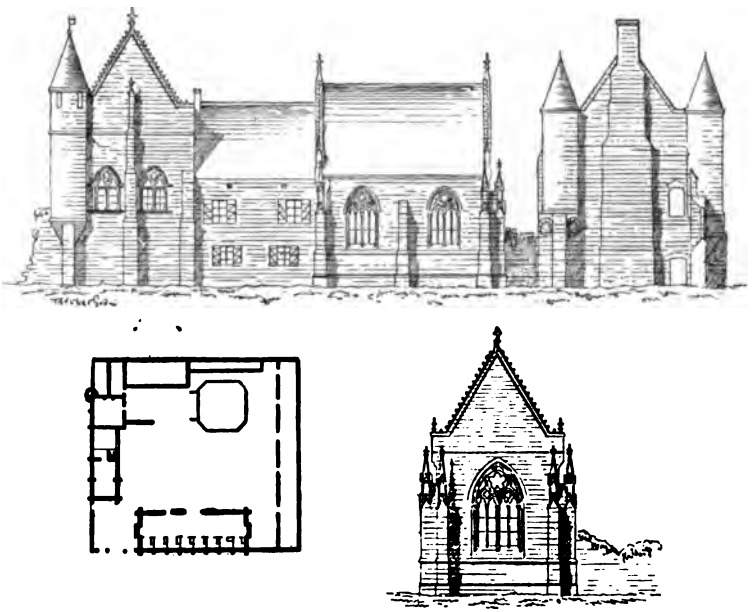
special buildings for the accommodation of monks



205. ABBEY OF OURSCAMPS (OISE, THIRTEENTH CENTURY). HOSPITAL, AS RESTORED BY A. VERDIER

whose business it was to tend the sick and to distribute alms to them and other travellers and pilgrims.

We learn from Viollet-le-Duc that so early as the Carlovingian period taxes were levied in aid of the poor, the sick, and pilgrims. Charlemagne had enjoined hospitality in his ordinances and



206. LAZAR-HOUSE AT TORTOIR (AISNE, FOURTEENTH CENTURY). FROM DRAWINGS BY A. VERDIER

capitularies, and it was forbidden to refuse shelter, fire, and water to any suppliant.

The communes vied with kings, nobles, abbots, and citizens in the discharge of such duties. Hospices and hospitals were founded on every hand, either in deserted buildings, or in specially constructed edifices.

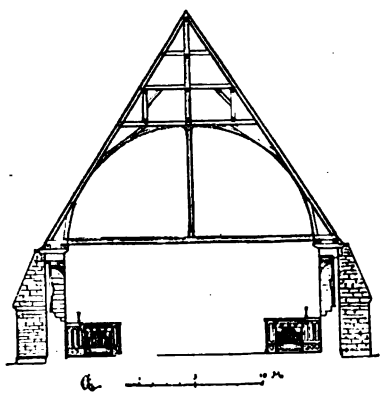
Refuges were also built on roads much frequented by pilgrims to shelter belated travellers, and hospices were constructed outside the walls and close to the city gates.

Pilgrimages were much in vogue in the Middle Ages, especially throughout the thirteenth and fourteenth centuries. The sanctuaries of St. Michael in Normandy, and of St. James of Compostella in Spain, were the most frequented. At the beginning of the thirteenth century a hospice was founded outside Paris, near the Porte St. Denis, which was dedicated to St. James. This hospice, with its chapel, was served by the confraternity of *St. Jacques aux Pèlerins* (St. James of Pilgrims), and offered gratuitous shelter each night to pilgrims bound for Paris. Its buildings covered two acres; they included a great hall of stone, vaulted on intersecting arches, and measuring some 132 feet by 36, for the accommodation of the sick.

In a file of accounts of the fifteenth century, concluding with an appeal for funds, it is stated that, for the convenience of pilgrims—*y a lieu pour ce faire XVIIJ liz qui depuis le premier jour d'aoust MCCCLXVIIJ jusques au jour de Mons. S. Jacques et Christofle ensuivant on estés logés et hebergés en l'hospital de céans* XV^{m} VI^{c} IIII^{xx}X *pèlerins qui aloient et venoient au Mont Saint Michel et austres pèlerins. Et encore sont logés continuellement chascune nuict de XXXVI à XL povres pèlerins et austres povres, pourquoy le povre hospital est moult chargé et en grant nécessité de liz, de couvertures et de draps.*[1]

[1] "Eighteen beds have been in use, and from the first day of August 1368 to the feast of SS. James and Christopher following (July 25,

In the first years of the fourteenth century several hundreds of *hôtels dieu*, hospitals, and lazar-houses received help from the King of France. St. Louis founded the *Hospice des Quinze-Vingts* for the blind, and in many towns hospitals were erected for the insane, the old, and the infirm, in addition to the usual lazar-houses. Special hospitals had already been established for women in labour, and a chapel was founded for their benefit in the crypt of the *Ste. Chapelle* of Paris, dedicated to Our Lady of Travail, of Tombelaine, in Normandy.[1]



207. HOSPITAL AT TONNERRE. SECTION OF THE GREAT HALL

Several hospitals of the Gothic period still exist. That of St. John at Angers is one of the most remarkable. It comprises a great hall, divided into three aisles, and vaulted on intersecting arches, and a chapel dating from the close of the twelfth or beginning of the thirteenth century. The fine barn at

1369) this hospital has lodged and sheltered 16,690 pilgrims journeying to or from St. Michael's Mount, besides others. And it has further given shelter each night to some thirty-six to forty poor pilgrims and other needy persons, whereby the poor hospital is heavily burdened and in sore straits for lack of beds, sheets, and blankets."—Ed. Corroyer, *Description de l'Abbaye du Mont St. Michel et de ses Abords*; Paris, 1877.

[1] *Idem.*

Angers is of the same period; the plan and details of construction are very curious, and resemble those of the barns and granaries already described.

The *Hôtel Dieu* of Chartres dates from about the same period.

The hospital of Ourscamps, near Noyon, is very similar as to the scheme of construction which seems to have been one generally adopted by the religious architects of the twelfth, and more notably of the thirteenth century. The grandiose proportions of the vast building recall the great vaulted halls of contemporary abbeys, such as those of St. Jean des Vignes at Soissons, and of the *merveille* at Mont St. Michel. Certain individual features characterise it as a hospice specially designed for the sick, the poor, and pilgrims.

The Hospice of Tonnerre appears to have been rebuilt in the fourteenth century. The vast design is very impressively carried out. The great hall, over 60 feet wide by some 300 long, is covered with an open timber roof, boarded in so as to form a semicircular vault, which is singularly effective.

The internal arrangements are very ingenious. A wooden gallery in the half-story commanded a view into each unceiled cubicle, by means of which it was possible to keep constant watch over the patients without disturbing them.

The hospital of Beaune has been so often described as to call for little comment. The painted timber vault of the great hall seems to have been imitated from that of Tonnerre. Its distinctive character has unfortunately been destroyed by the construction of

a ceiling, the joists of which rest on the tie-beams of the original skeleton. But the inner court is intact, with the arcade and well and wash-house so familiar from descriptions and illustrations. Another picturesque and often described feature is the great roof on the south side, with its double row of dormer windows surmounted by a rich ornamentation of hammered lead.

In the fifteenth and sixteenth centuries the practice of vaulting the great halls of hospitals with stone was abandoned. It became usual in France and in Flanders to cover the vast aisles with timber roofs, the boarded vaults of which were either pointed or barrel-shaped.

The term *maladrerie* was applied to the small lazar-houses, numbers of which were built in France in the neighbourhood of abbeys or of priories remote from towns and great religious centres.

The *Maladrerie du Tortoir*, not far from Laon, on the *Route de la Fère*, is a type of such rural hospitals. Both in plan and in the details of construction it recalls the hospital of Tonnerre, more especially in the ingenious arrangement of the interior.

In the planning of these charitable institutions mediæval architects exhibited the same skill and ingenuity which distinguished their treatment of religious monuments. Viollet-le-Duc has pointed out the strange illogicality of such a theory as that which would make artists who showed extraordinary subtlety in religious buildings responsible for so much coarseness in civil structures. We must not hold them accountable for the destruction of their well-planned hospitals from the sixteenth century onwards, and

the substitution of buildings, the main preoccupation of whose architects was to provide accommodation for as many patients as possible. Louis XIV. endowed the hospitals built in his reign with the revenues of the lazar-houses and *maladreries*, for which there was no further occasion, leprosy having disappeared from his dominions. But his hospitals leave much to be desired from the hygienic point of view; the mediæval hospitals, on the other hand, have a monumental simplicity of appearance, and offer a liberal supply of light, air, and space to their patients. We do not assert the superiority of the cellular system commonly adopted in hospitals from the twelfth to the fifteenth century, over that of the open wards of our own times, but we may be permitted to point out its great moral advantages. And, as our learned authority remarks, the system owed its adoption to a noble delicacy of charitable feeling in the mediæval founders and builders of our *maisons dieu*.

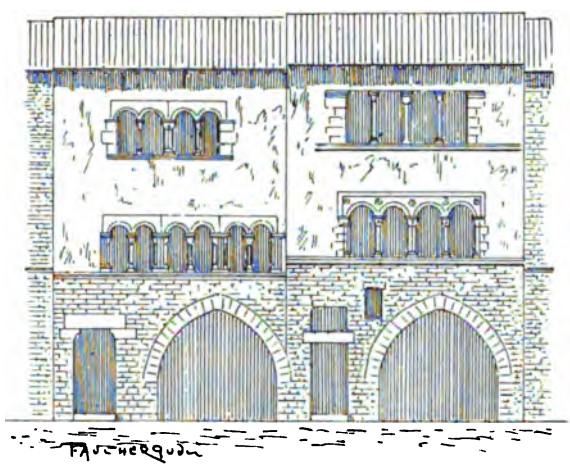
Houses and Hôtels, or Town-Houses of the Nobility. —The history of human habitations is a subject of such interest that to treat it adequately a special work would be necessary. Such an undertaking has, moreover, been admirably carried out by a famous architect.[1]

We must refrain from discussion of prehistoric or Merovingian dwellings, or of those rural hovels, the typical variations of which, in different countries

[1] Ch. Garnier, Member of the Institute, whose picturesque embodiment of research, in his reconstruction of human habitations from the lacustrine period to our own times, attracted so much attention at the Exhibition of 1889.

and climates, offers so wide a field for study. To keep within the limits assigned us by the arbitrary term Gothic Architecture, we must confine our rapid sketch to the architectural period which dates from the middle of the twelfth to the close of the fifteenth century.

Nothing remains of habitations constructed in

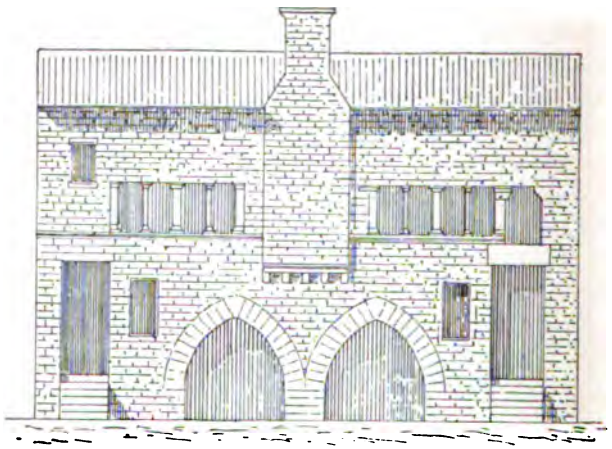


208. HOUSE AT CLUNY (TWELFTH CENTURY)

France before the twelfth century, save the vague and scanty records of ancient texts, manuscripts, and bas-reliefs. But we may reasonably infer that the houses of the period were built of wood, as was natural in a country containing great tracts of forest. We know that most of the important buildings were timber structures, which explains the fact that numbers of twelfth-century churches were founded on the sites of earlier buildings destroyed by fire.

Roman, Gallo-Roman, and Merovingian houses were arranged to suit the habits of the times; they were lighted by windows opening upon an inner courtyard, in accordance with the ancient custom of separating the women's apartments from the rest of the habitation.

But by the end of the twelfth century the urban dwelling was adapted to the needs of a family. The

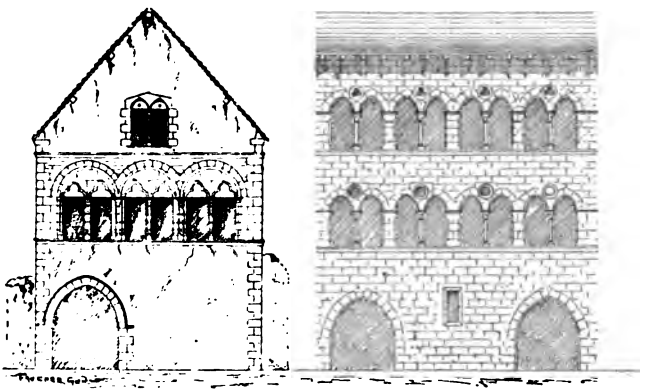


208A. HOUSE AT CLUNY (TWELFTH CENTURY)

doors and windows of the house were made to overlook the street. The building consisted generally of a hall or shop, in which a handicraft was carried on, or manufactured goods were offered for sale. It was lighted by a wide arcade of round or pointed arches, and was either on a level with the street, or raised above it by the height of some few steps. A back room, opening upon a courtyard, served for kitchen and dining-room. To the left of the façade

a little door gave access to a staircase which led to the first floor, where was a large *solar* or living-room and an apartment overlooking the courtyard. Above these were the chambers occupied by the inmates of the house.

The architecture of such houses varies according to the climate, the materials of the country, and the customs of the inhabitants. The houses had no



209, 210. HOUSES AT VITTEAUX (CÔTE D'OR), AND AT ST. ANTONIN (TARN ET GARONNE, THIRTEENTH CENTURY)

special individuality as long as the windows were treated merely as apertures for the admission of light; but directly these began to take on a certain elaboration, and such features as mouldings or sculptures were introduced in the façades, a system of decoration was borrowed from the neighbouring churches or abbeys of monkish architects, a consequence either of the far-reaching influence of monastic schools, or of the spirit of imitation and force of habit.

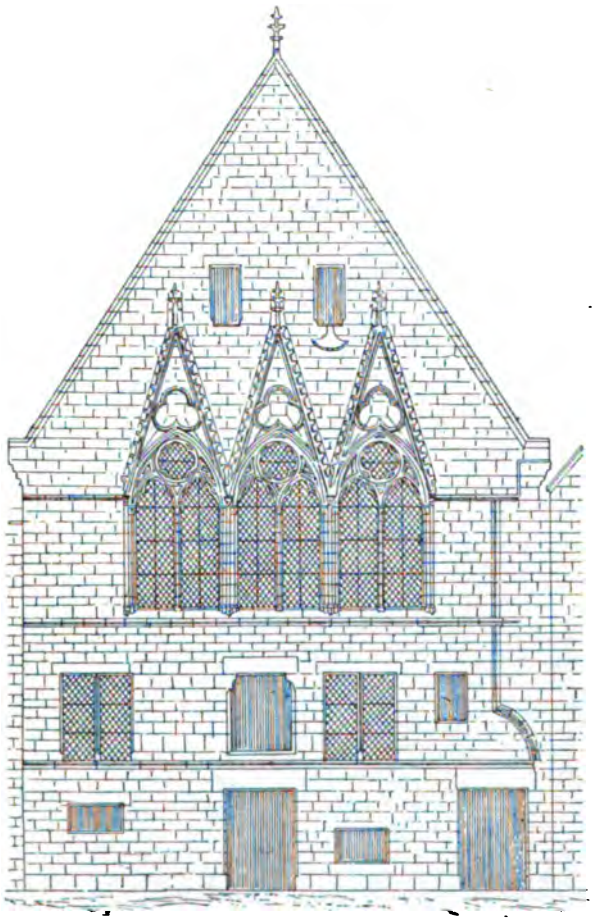
Certain houses at Cluny, which date from the

twelfth century, exemplify the style. They are built

211. HOUSE AT PROVINS (FOURTEENTH CENTURY)

almost entirely of stone. The arcading recalls

various details of monastic buildings which the con-



212. HOUSE AT LAON (FOURTEENTH CENTURY)

structors very naturally took as models.

The same may be said of the other houses, of

213. HOUSE AT CORDES. ALBIGEOIS (FOURTEENTH CENTURY)

which we give drawings as illustrating the urban

type of the thirteenth and fifteenth centuries. It is easy to trace the successive developments of religious and monastic architecture in the domestic buildings of the period.

It is not until the close of the fourteenth century, and more notably in the fifteenth, that such influences gradually die out, and change, if not progress, becomes evident in the altered form of the arcades, which no longer resemble those of cloisters or churches, but have elliptic or square apertures. These, in the windows, are no longer subdivided by a stone tracery of ornamental cusps and foliations, but merely by plain mullions and transoms, forming square compartments which it was possible to fill with movable glazed sashes of the simplest construction.

The façades are generally of durable materials, such as stone or brick, and the use of wood is restricted to the floors and the roofs.

Houses of the fifteenth century in the Northern departments, where stone is scarce, were built mainly of wood, the more solid material being used only on the ground-floor. The overhanging upper stories were of timbers, the interstices being filled in with brick. The principal members, such as corbel tables, beams, ledges, and window-frames, were decorated with mouldings and sculptures. The façade usually terminated in a gable, the projecting pointed arch of which followed the lines of the timber roof. In other cases it was crowned by richly decorated dormer windows. In rainy districts the roof was covered with slates or shingles.

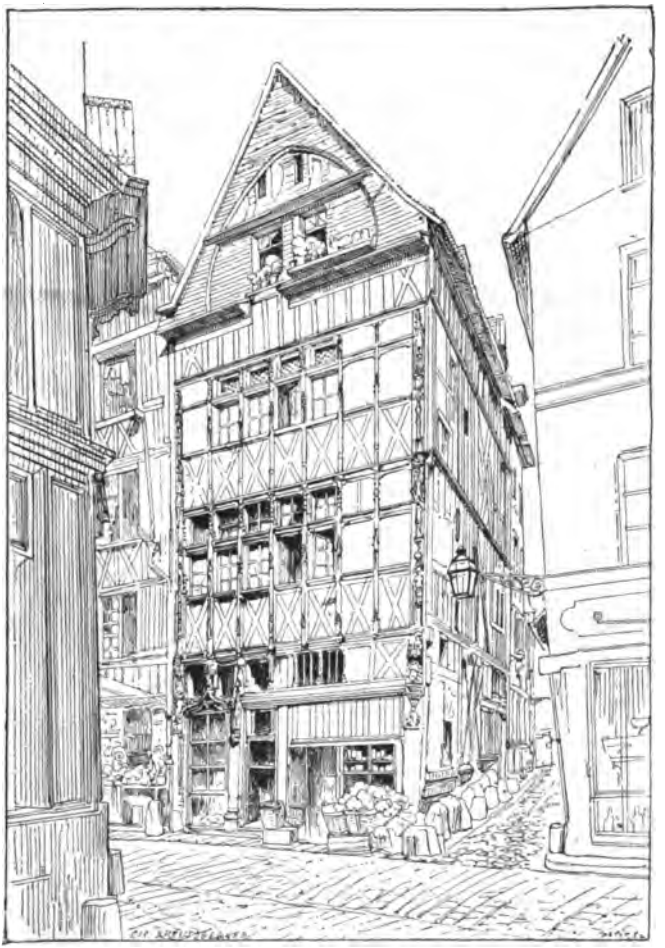
It was usual in the North to detach each house at the upper story, even when it was not practic-

able to allow a narrow passage or space between.

214. HOUSE AT MONT ST. MICHEL (FIFTEENTH CENTURY)

This was not merely a concession to the vanity of the citizen, to his desire to make his independent

gable a feature of the street. It was also a pre-



215. WOODEN HOUSE AT ROUEN (FIFTEENTH CENTURY)

cautionary measure against fires, which were frequent

216. WOODEN HOUSE AT ANDELYS (FIFTEENTH CENTURY)

and disastrous in cities built mainly of wood, and

possessing but very rudimentary appliances wherewith to meet such a catastrophe.

The fifteenth and notably the sixteenth centuries were marked by the building of a new class of dwellings, the *maisons nobles*, or town-houses of the nobles, who, down to this period, had lived entirely

217. HÔTEL LALLEMAND AT BOURGES (END OF THE FIFTEENTH CENTURY)

in their fortified castles. These great seignorial mansions differ essentially from the houses of the citizens. The *hôtel* occupied a considerable space, in which a courtyard and even gardens were included. The house of the citizen or merchant was built flush with the street, whereas the *hôtel* was placed in an inner court, often richly decorated, and the street-front was devoted to stables, coach-houses, servants'

lodgings, and the great entrance which gave access to the court and the main building.

The names at least of some famous Parisian *hôtels* of the fourteenth and fifteenth centuries have survived, such as the *hôtels* des Tournelles, de St. Pol, de

218. JACQUES CŒUR'S HOUSE AT BOURGES. VIEW FROM THE PLACE BERRY (FIFTEENTH CENTURY)

Sens, de Nevers, and de la Trémoille, the last destroyed in 1840. The Hôtel de Cluny, which dates from 1485, is a very curious example, and of remarkable interest, as having been preserved almost intact.

Several great houses of the same period still exist at Bourges. Among others, the Hôtel Lallemand,

built towards the close of the fifteenth century, the inner court of which is especially noteworthy, and the still more famous *hôtel* or *château* of Jacques Cœur.

This beautiful structure dates from the second half of the fifteenth century, and is built in part on the ramparts of the town. It is so well known that it will be unnecessary to describe or illustrate the famous portals and inner court. But the façade on the Place Berry, though less sumptuous, is hardly less interesting. Here we have the two great towers of the fortified *enceinte*, with their Gallo-Roman bases, and between them the *corps de logis* or main buildings of the mansion, which retain many features of the feudal castle, and bear witness to the wealth and power of Charles VII.'s ill-used favourite, the famous banker, whose splendid fortunes suffered such undeserved eclipse.

CHAPTER II

TOWN-HALLS, BELFRIES, PALACES

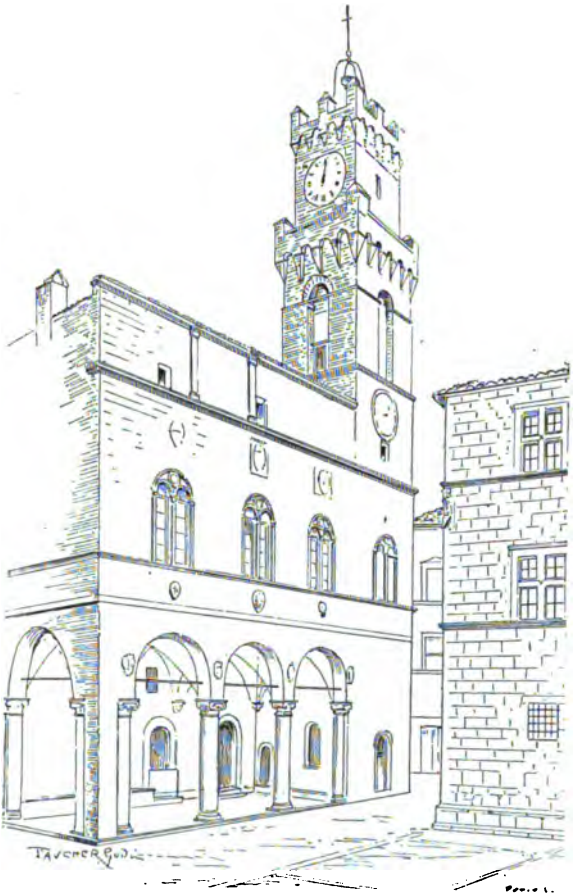
THE social evolution which resulted in the enfranchisement of the communes had its origin in the eleventh century, though the consummation of this great political change was of much later date.

Down to the fourteenth century the efforts of the communes to exercise the rights conferred on them in charters wrung from their feudal lords received incessant checks. The opposition they encountered is hardly to be wondered at, seeing that every concession in their favour tended to diminish the despotic authority of those from whom it had been won. No sooner, therefore, was a charter rescinded and a commune abolished than the instant demolition of the town-hall and belfry was demanded. Hence very few town-halls of earlier date than the fourteenth century have survived.

Town-halls.—A few of the great Southern cities owned town-halls so early as the twelfth century, among them Bordeaux, where the building was of the Roman type, and Toulouse, whose town-hall was practically a fortalice.

But by far the greater number of the infant

communes were sunk in poverty, and so over-



219. TOWN-HALL OF PIENZA, ITALY (END OF THE FOURTEENTH CENTURY)

whelmed with dues and taxes that they had no margin for communal buildings.

In the fourteenth century even the commune of Paris could boast only the most modest of town-halls. In 1357 Etienne Marcel, provost of the merchants, bought from the collector of the salt-tax a small two-gabled building which adjoined several private dwellings. We may, therefore, conclude that down to this period the town-hall was in nowise distinguished from an ordinary habitation.

At the close of the century Caen possessed a town-hall of four stories.

During the thirteenth century many new towns and communes had been founded by the Crown, the nobles, and the clergy, the depositaries of power in the Middle Ages.

In the North, Villeneuve le Roi, Villeneuve le Comte, and Villeneuve l'Archevêque owed their existence, material and communal, to these powers respectively.

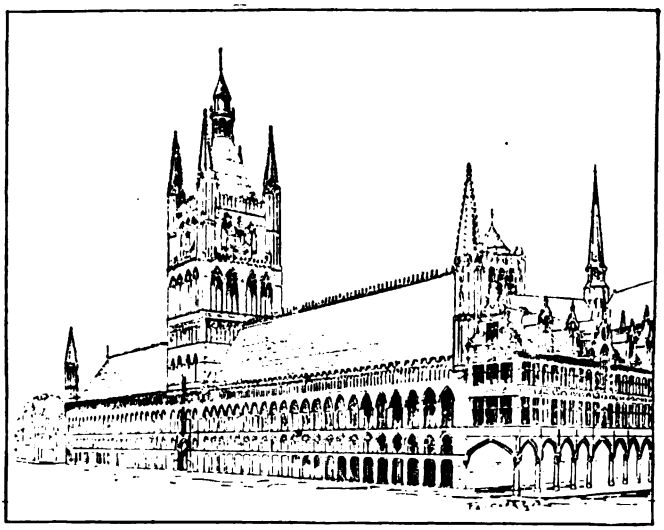
In the South the war of the Albigenses had devastated and even destroyed many cities. The authorities recognised the necessity of repeopling the districts so cruelly decimated. The great nobles, spiritual and temporal, reconcentrated the scattered population by grants of lands for the building of new towns, and sought to establish them permanently by apparently liberal concessions in the form of communal franchises.

According to Caumont and Anthyme St. Paul, these new towns or *bastides* may be identified by their names, or by their regularity of plan, or by both combined.

Certain names indicate a royal foundation or

dependency, as Réalville or Monréal; others point to privileges conferred on the town, as Bonneville, La Sauvetat, Sauveterre, Villefranche, or even La Bastide, and Villeneuve.

A third class borrow the names of French and occasionally of foreign provinces or towns. Anthyme



220. TOWN-HALL AND BELFRY AT YPRES (BELGIUM)

St. Paul gives a list of such in the *Annuaire de l'archéologie française*,—Barcelone or Barcelonnette, Beauvais, Boulogne, Bruges, Cadix, Cordes (for Cordova), Fleurance (for Florence), Bretagne, Cologne, Valence, Miélan (for Milan), La Française and Francescas, Grenade, Libourne (for Leghorn), Modène, Pampelonne (for Pampeluna), etc.

A new town or *bastide* is usually rectangular in

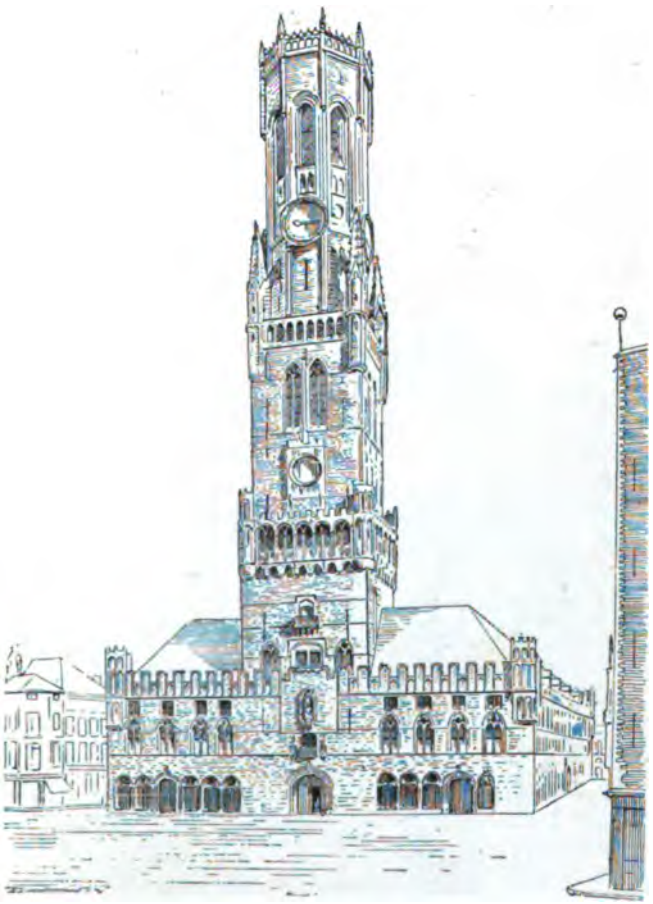
plan, and measures some 750 by 580 feet. Sauveterre d'Aveyron is an example. In the centre is a square, into which a street debouches on each side, thus dividing the town into four parts. The square is surrounded by galleries or cloisters, of round or pointed arches, covered with a timber roof or vault, with or without transverse arches, whence the term *Place des Couverts*, still common in some Southern towns.

In the centre of the square stood the town-hall, the ground-floor of which was used as a public market. Montréjeau is one of the towns in which this regularity of construction is observed, also Montpazier, the streets of which are lined with wide arcades of pointed arches. Other examples are to be found at Eymet, Domme, and Beaumont, Libourne, Ste. Foy, and Sauveterre de Guyenne, Damazan, and Montflanquin, Rabastens, Mirande, Grenade, Isle d'Albi, and Réalmont, etc. Several *bastides* in Guyenne were founded by the English. Finally, the lower town of Carcassonne, founded in 1247, and Aigues-Mortes, founded in 1248, also belong to the class of *bastides* or new towns.[1]

"The series of Southern *bastides*, inaugurated in 1222 by the foundation of Cordes-Albigeois, was brought to a close in 1344 by a petition of the town-councillors of Toulouse, in answer to which the king forbade any further settlements. Two hundred at least of the *bastides* still exist in Guyenne, Gascony, Languedoc, and the neighbouring districts. Several of these were unprosperous, and are still small villages. In some cases their close

[1] See Part III., "Military Architecture."

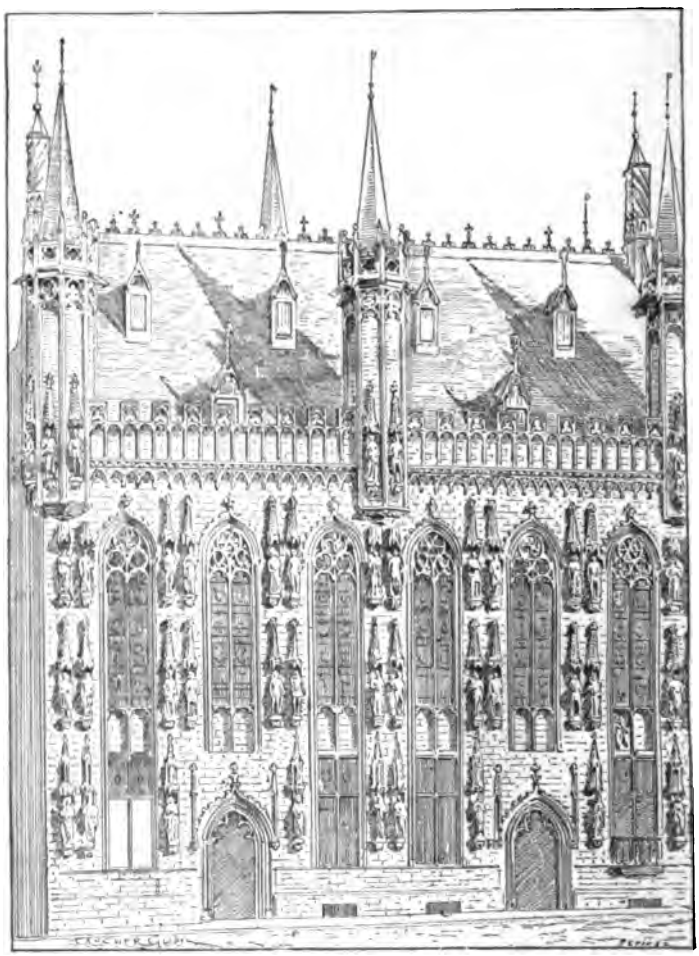
proximity tended greatly to their mutual disadvantage." [1]



221. MARKET AND BELFRY AT BRUGES (BELGIUM)

[1] Anthyme St. Paul, *Histoire Monumentale de la France.*

It is worthy of remark that civil architecture had



222. TOWN-HALL OF BRUGES (BELGIUM)

so greatly developed by the fifteenth century as to react in its turn upon the religious art to which it owed its birth. It gave to religious architecture certain new forms, such as the elliptic arch, adopted at the close of the fifteenth and throughout the following century, at which period civil architecture reached its apogee.

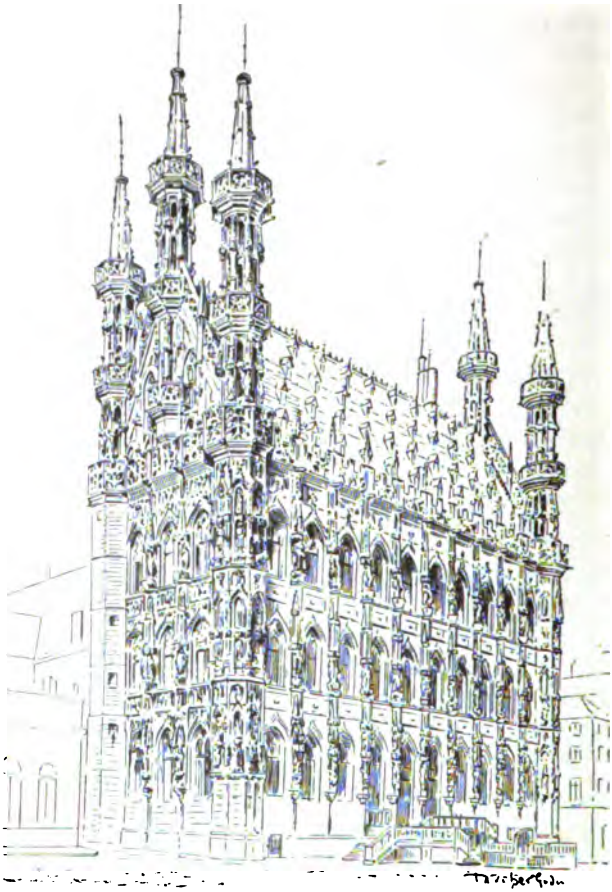
The Southern communes preserved their franchises till the sixteenth century, that disastrous era of religious warfare which involved the destruction of innumerable buildings.

The town-hall of St. Antonin (Tarn et Garonne) is perhaps the only surviving one of the period. With the exception of the belfry, it is an almost perfect type of the architecture of this class in the thirteenth century, to which date it may probably be assigned (Fig. 200).

The little town of St. Antonin, which had obtained its communal charter in 1136, suffered much for its fidelity to Raymond VI., Count of Toulouse. During the war of the Albigenses it was twice taken by Simon de Montfort, whose son, Guy de Montfort, sold it to St. Louis in 1226. It was at this period, no doubt, that the present building was erected. It has the characteristic feature of the civic monument, the *belfry*, which, in the Middle Ages, was the architectural expression of municipal authority and jurisdiction.

The building is a simple rectangular structure, over which the square tower rises to the right. The ground-floor is a market, communicating with an adjoining market-place, and with the narrow street which passes under the belfry. The *grande salle* or

municipal hall occupies the first story, together with



223. TOWN-HALL AT LOUVAIN (BELGIUM)

a smaller apartment in the tower. The second story is divided in the same manner.

We have already called attention to the far-reaching influence of French art as manifested in religious architecture so early as the close of the twelfth century. Such influences were no less paramount in developments of civil architecture, and we find municipal buildings of the fourteenth century in Italy—at Pienza and other towns—in which not only analogies but points of identity with the thirteenth-century example of St. Antonin are distinctly traceable.

The municipal buildings of the North, the most perfect types of which are those of Germany and Belgium, are nearly uniform in plan. A belfry rises from the centre of the façade, flanked right and left on the first story by the great civic halls. The ground-floor is a market for the sale of merchandise.

The cloth-hall of Ypres (so named since the construction of a new town-hall in the seventeenth century) is one of the most beautiful of such examples. The building was begun in 1202, but was not completed till 1304. The façade measures 440 feet in length, and has a double row of pointed windows. It terminates at each angle in a very graceful pinnacle, and the centre is marked by a noble square belfry of vast size, the oldest portion of the building, the foundation-stone of which was laid by Baldwin IX. of Flanders in 1200.

The belfry of Bruges, which was begun at the close of the thirteenth century, and completed some hundred years later, is another most interesting example of the civic buildings of its period.

The structure consists of a market and the usual

municipal halls, crowned by the lofty belfry, the original height of which was 350 feet.

224. BELFRY OF TOURNAI (BELGIUM)

The *hôtel de ville* or town-hall of Bruges, which

replaced an earlier municipal building in the *Place du Bourg*, dates from between 1376 to 1387. Its

225. BELFRY OF GHENT (BELGIUM)

architectural character differs entirely from that of

the belfry. Its elegant design and the richness of its ornamentation give it the appearance rather of a sumptuously decorated chapel than of a civic building.

We may close the list of Belgian town-halls of the fourteenth and fifteenth centuries with that of Louvain. The design and general scheme of elaborate decoration are akin to those of the hall of Bruges, and it bears the same ecclesiastical impress.

It was built between 1448 and 1463 by *Mathieu de Layens, master mason of the town and its outskirts*, and is a rectangular building of three stories. The gable ends are pierced with three rows of pointed windows, and adorned with a rich profusion of mouldings, statues, and sculptured ornament. The steep roof has four tiers of dormer-windows. The angles are flanked by graceful open-work turrets, with delicate pinnacles, and similar turrets receive the ridge of the roof at either end. The lateral façades are adorned with three rows of statues and allegorical sculptures, covering the whole with a wealth of exquisite tracery. Its lace-like delicacy has suffered considerably from the action of weather, and it was found necessary to renovate a considerable portion of the ornament in 1840.

Belfries.—In the early days of the enfranchisement of the communes, it became customary to call the community together by means of bells, which at that period were confined to the church towers, and which it was unlawful to ring without the consent of the clergy. It may easily be conceived to what incessant broils the new order gave rise, the clergy as a body being strongly opposed to the separatist tendency of measures which attacked their feudal

rights. The municipalities finally put an end to internecine warfare in this connection by hanging bells of their own over the town-gates, a custom which was superseded towards the close of the twelfth and beginning of the thirteenth century by the erection of towers for the civic bells. Such was the origin of the *belfry*, the earliest material expression of communal independence.

The structure usually formed part of the town-hall, but was sometimes an isolated building. The isolated belfry was a great square tower of several stories, crowned by a timber roof protected either by slates or lead. The great bells hung in one story, and above them the little bells of the carillon.

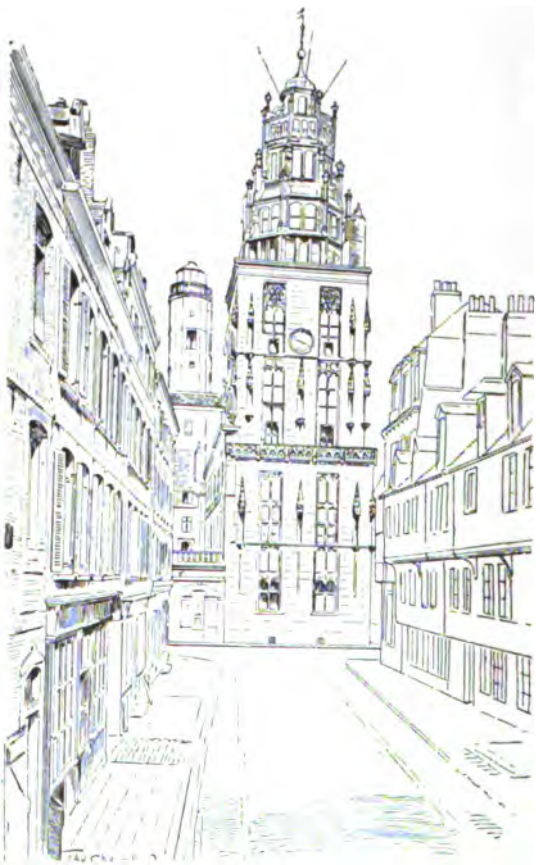
A lodging, opening upon a surrounding gallery, was constructed in the upper story for the accommodation of the watchman, whose duty it was to warn the inhabitants of approaching danger and to give notice of fires. The bells rang at sunrise and curfew.

The chimes (*carillon*) marked the hours and their subdivisions, and at festival seasons mingled their joyous notes with the deep and solemn voice of the great bell.

The custom of tolling the great bell to give notice of a fire still obtains in many villages of the North, the greater number of which have preserved their belfries in spite of the modifications they have undergone at different periods.

The belfry tower usually contained a prison, a hall for the town-councillors, a muniment room, and a magazine for arms. It was long the only town-hall of a commune.

We shall find examples of these early municipal



226. BELFRY AT CALAIS (FRANCE)

buildings among the isolated belfries of Belgium, such as that at Tournai, founded in 1187, and

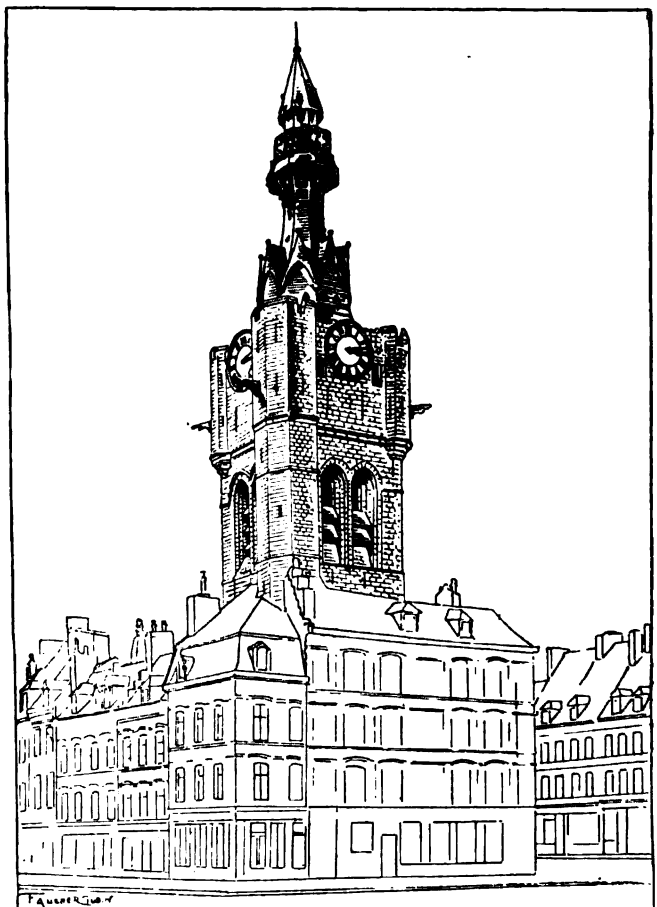
rebuilt in part at the close of the fourteenth century, and that of Ghent, the square tower of which dates from the end of the twelfth century. Its spire is a modern addition.

A few buildings of this particular class still exist in France. Such is the belfry of Calais, the square tower of which was built during the fourteenth and fifteenth centuries. It is crowned by an octagonal superstructure, begun at the close of the fifteenth century, and completed in the early years of the seventeenth. The belfry of Bethune, which dates from the fourteenth century, is another. It consists of a square tower reinforced at three of its angles by a hexagonal turret, corbelled out from the wall. The fourth turret is of the same shape, but here the projection is carried up from the ground-floor, and contains the spiral staircase which communicates with the various stories of the tower, and terminates on the embattled parapet above. The building is completed by a pyramidal spire of great elegance, crowned by the watchman's tower. The plan and details of this superstructure proclaim it the source whence the gable turrets of Louvain were derived. The great bells hang in the uppermost story, the smaller ones of the carillon in the story below. On each façade at the summit of the tower a great dial marks the hours, as was customary from the fourteenth century onwards, when town-clocks first came into general use.

The towns of Auxerre, Beaune, Amiens, Évreux, and Avignon still possess their belfries.

To the belfry of Amiens, which dates from the

thirteenth century, a square dome was added some



227. BELFRY OF BETHUNE (FRANCE)

hundred years ago. But the great bell of the fourteenth century has been preserved.

The belfry of Évreux retains its fifteenth-century

228. BELFRY OF ÉVREUX

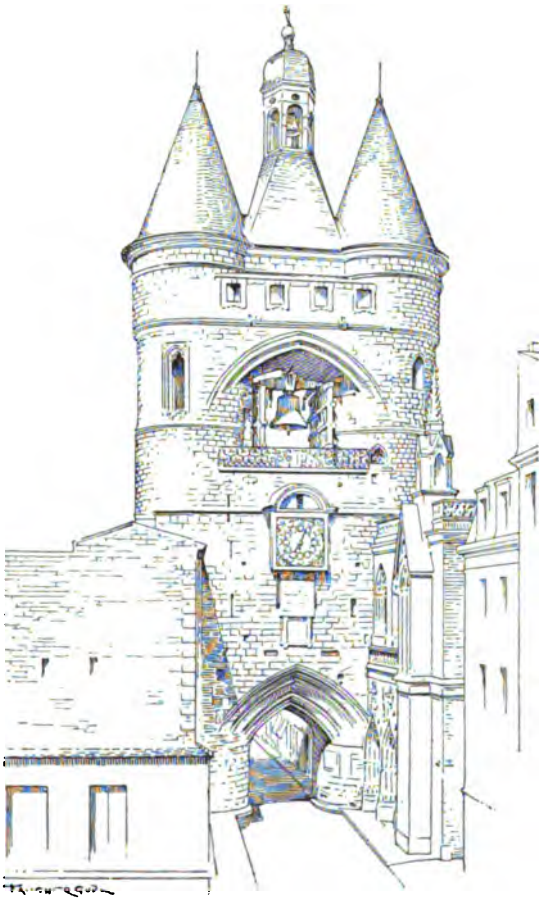
character almost in its entirety. That of Avignon, a monument of the close of the fifteenth century, was

happily spared when the town-hall was replaced by a modern structure.

229. BELFRY OF AVIGNON

The gate-house of the *hôtel de ville* at Bordeaux, known as the *grosse cloche*, is an example of the

more ancient usage. Here we find the bell hung



230. BELFRY GATE AT BORDEAUX, KNOWN AS *LA GROSSE CLOCHE*

over the gateway, as already described. The belfry of Bordeaux, which appears to date from the fifteenth

century, is very remarkable. It consists of two towers connected by a curtain through which is an arched passage. A second arch protects the great bell in the upper story, and the whole is surmounted by a central roof, flanked right and left by the conical crowns of the lateral turrets.

Markets, warehouses, and exchanges were often annexes of the town-halls. A few examples of such buildings have been preserved, but those of the third class are extremely rare. A specimen, remarkable both for construction and decoration, which recall the Spanish architecture of the fourteenth century, still exists at Perpignan. It is a house known as *La Loge*, built in 1396, which originally served as exchange to the cloth merchants of French Catalonia and Roussillon.

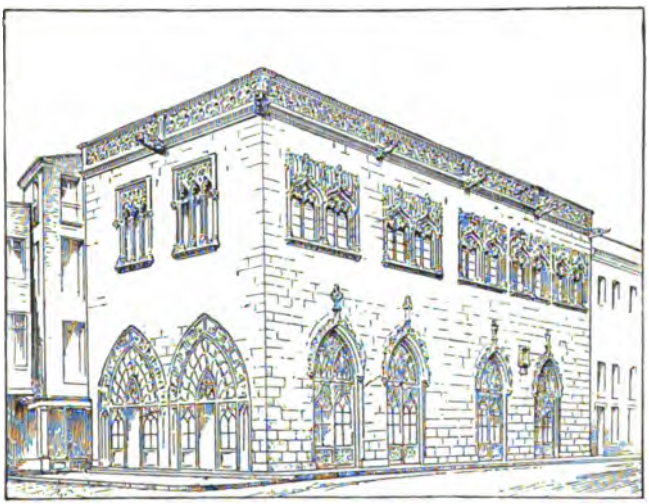
Palaces.—In the Middle Ages the name palace was given to the dwelling of the sovereign. Its chief feature was the basilica or judgment-hall.

The great nobles followed the royal example and constructed palaces in the capitals of their feofs, as at Dijon, Troyes, and Poitiers, which are the most important of such examples.

The town-houses of archbishops and bishops were also called palaces.

The courts, parliaments, and tribunals of the executive were held in the palace of the suzerain or the bishop, where certain of the buildings were open to the public. The important feature, the great hall (*grand salle*), occupied a vast covered space in which the plenary courts were held, the vassals assembled, and banquets were given. It communicated with galleries or ambulatories. A chapel was

always included in the plan of the palace, which consisted of the lodging of the lord and his followers; offices, often of great extent; rooms for the storing of archives; magazines, prisons, and innumerable auxiliary buildings, divided by courtyards, and in some cases by gardens.

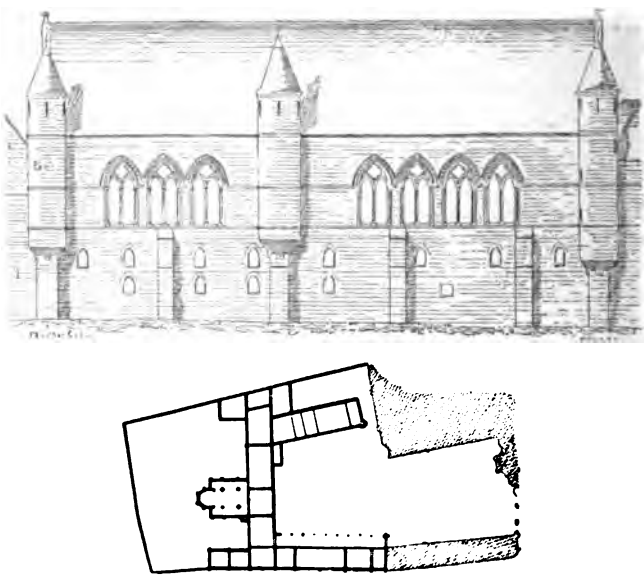


231. CLOTH HALL AT PERPIGNAN, KNOWN AS *LA LOGE*

In Paris the palace proper, which was in the Île de la Cité, consisted of buildings constructed from the time of St. Louis to the reign of Philip the Fair. From the reign of Charles V. it was specially devoted to the administration of justice.

The only remains of the buildings of St. Louis are the *Ste. Chapelle*, the two great towers with their intervening curtain on the *Quai de l'Horloge*, and the square clock tower at the angle of the quay.

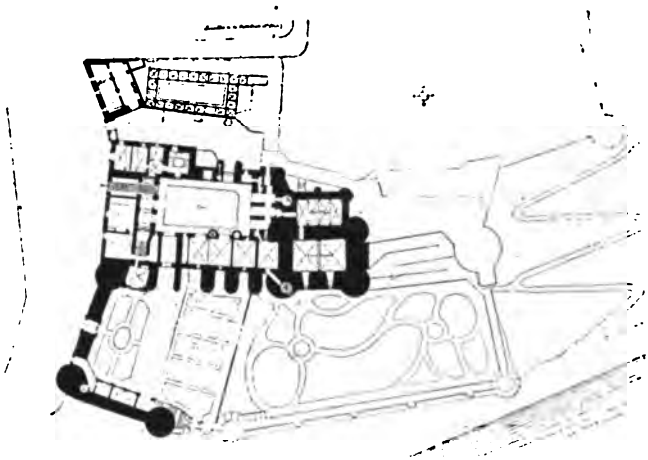
The best examples of seignorial castles are: Troyes, which was built by the Counts of Champagne. and inhabited by them till they removed to Provins in the thirteenth century; and the palace of the Counts of Poitiers at Poitiers, one of the most



232. BISHOP'S PALACE AT LAON

interesting of such buildings; it was burnt by the English in 1346, and repaired or rebuilt at the close of the fourteenth century by the brother of Charles V., Jean, Duke of Berry, to whom we owe, among other architectural works, the curious fireplace of the great vestibule, called the *Salle des Pas Perdus*, in the *Palais de Justice.*

The bishops' palaces were differently planned. They usually adjoined the cathedrals, with which they communicated either on the north or the south, according to the facilities afforded by the site. The characteristic symbol of episcopal power which, in the earlier centuries of the Middle Ages, claimed jurisdiction both in spiritual and temporal matters,



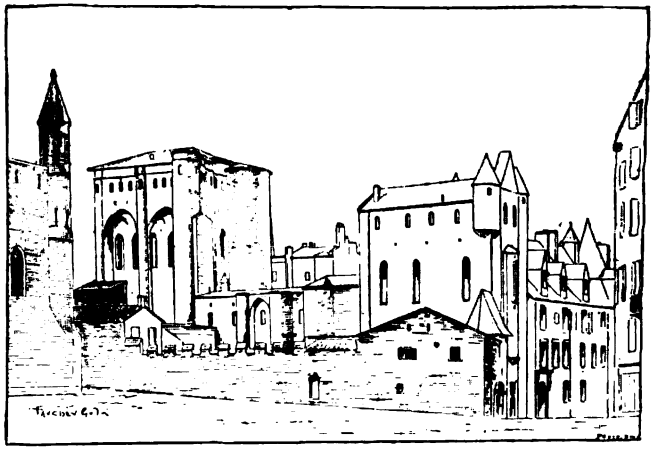
233. ARCHBISHOP'S PALACE AT ALBI. PLAN

was the great hall, in later days the synod house and the council chamber of the executive. The bishop's palace in Paris, rebuilt by Maurice de Sully in 1160, preserved this mediæval feature, which is even more conspicuous at Sens, in the magnificent annexe known as the *salle synodale* (synod house).

The canons' lodgings were also in close proximity to the cathedral, but on the side opposite to the bishop's palace. They were surrounded by an en-

closure, the gates of which were fastened at night. It was the duty of the canons to aid the bishop in his ministrations. They lived together in annexes which communicated with the cathedral by means of galleries and cloisters.[1]

The bishops' palaces were often remarkable for their elaborate construction. Fragments of the



234. ARCHBISHOP'S PALACE AT ALBI. GENERAL VIEW

primitive buildings are still preserved in the palaces of Beauvais, Angers, Bayeux, and Auxerre.

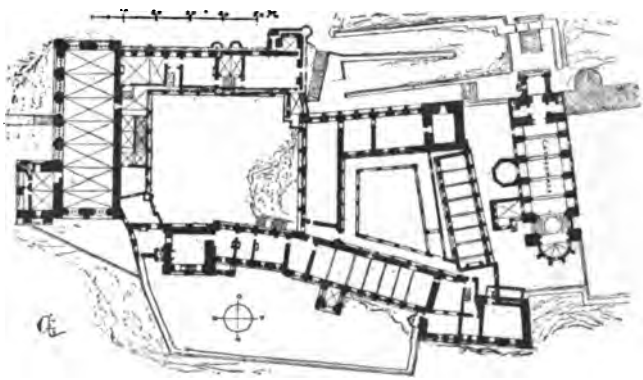
The ancient episcopal palace of Laon[2] marks a development in thirteenth-century architecture. It is a good example of that system of construction by which the palace was connected with the city ramparts and formed a secondary line of defence.

[1] See Part II., "Monastic Architecture," the cloisters of Puy-en-Velay and Elne in Roussillon.

[2] The episcopate was transferred to Soissons in 1809.

This system was also adopted at Narbonne. At the close of the thirteenth and during the fourteenth century the palace was transformed into a fortress, the importance of which bore witness to the power of its bishops. After Avignon, it is perhaps the most imposing of episcopal dwellings.

From this time onward the bishops' palaces increased greatly in size, their dimensions extending



235. PALACE OF THE POPES AT AVIGNON. PLAN

proportionately with those of the great cathedrals of the period. The importance of the episcopal buildings and their dependencies was on a par with the wealth and power of their owners. Some idea of their magnificence may be gathered from the private chapel of the archbishop at Rheims, which dates from the middle of the thirteenth century.

The archbishop's palace at Albi has all the character of a feudal castle. Its buildings are protected by a keep, and encircled by walls and towers

connected both with the ramparts of the city, and with that more important fortalice, the cathedral itself, the tower of which is, in fact, a formidable keep.[1]

The transformation of church and palace into fortresses by an elaborate system of defence was necessitated by the wars which ravaged the district, and from which Albi suffered more cruelly than any other town.

The palace of the popes at Avignon which Pope Benedict XII. began to build in the fourteenth century, and the bishop's palace at Narbonne, are among the finest specimens of ecclesiastical fortification in the Middle Ages.[2]

The Popes, having established themselves at Avignon in the fourteenth century, built a huge mansion on the rock known as the *Rocher des Doms*, which overlooks the Rhone. In 1336 Benedict XII., having destroyed his predecessor's palace, laid the foundations of the immense fortified pile now in existence. The plans were the work of the French architect, Pierre Obrier. The building was added to by the successors of Benedict XII., Popes Clement VI., Innocent VI., and Urban V., and was completed, or at any rate made efficient for defence, by 1398, when Pedro de Luna, who became pope under the title of Benedict XIII., sustained a memorable siege therein.

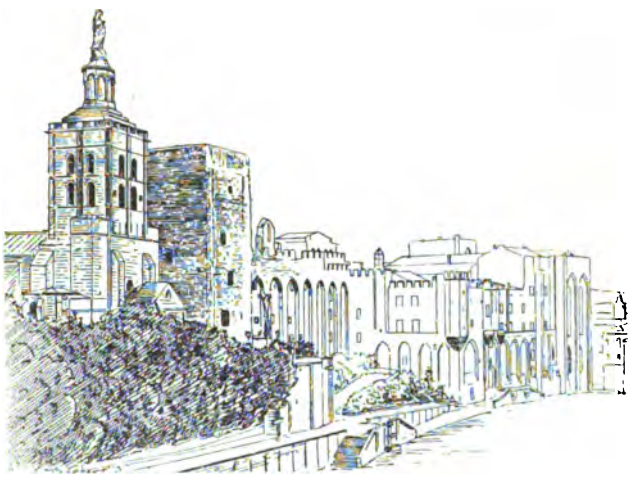
The whole building, which covers a very considerable area, was completed in less than sixty years. Its formidable mass was further strengthened by

[1] See Part I., Cathedral of Albi, Figs. 70-73.

[2] For the Palace of the Popes, see Albert Lenoir and Viollet-le-Duc.

the fortified *enceinte* of the town, some three miles in circumference.

In general conception, in the architectural skill of its construction, and in its tasteful decoration, the Palace of the Popes at Avignon bears away the palm from all contemporary buildings in Germany and Italy, where French influences were paramount.



236. PALACE OF THE POPES AT AVIGNON. GENERAL VIEW

This noble monument is absolutely and entirely French. No finer combination of religious, monastic, military, and civil types could be desired in illustration of the art we have agreed to term *Gothic Architecture*, but which might be more truly entitled: *Our National Architecture in the Middle Ages.*

Justice indeed demands this tardy homage. Our vast churches, our superb cathedrals, our mighty castles and palace fortresses, the masterpieces that

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